Change Processes in Healthcare: From Patient Centered Medical Homes to Clinical-Community Networks. Key Factors for Succesful Implementation and Lessons Learned

Thesis

presented to the Faculty of Arts and Social Sciences
of the University of Zürich
for the degree of Doctor of Philosophy

by Ursula Koch

Accepted in the spring semester 2017
on the recommendation of the doctoral committee
Prof. Dr. Urte Scholz (main supervisor)
Prof. Dr. Thomas Rosemann

Zürich, 2017

Zusammenfassung

Gesundheitspolitische Herausforderungen, wie die Zunahme chronischer Erkrankungen, erfordern eine Transformation des fragmentierten, auf akute Erkrankungen ausgerichteten Gesundheitswesens hin zu einem kollaborativen, koordinierten Gesundheitssystem, das die Gesundheit der Bevölkerung umfassend verbessert. Da Gesundheit das Resultat vieler Determinanten ist, führt die medizinische Versorgung alleine nicht zu einer Verbesserung der Gesundheit, sondern bedarf der Vernetzung mit Angeboten ausserhalb des medizinischen Sektors. Dies verlangt nach neuen Versorgungsmodellen, welche die Grundversorgung und die klinisch-kommunale Vernetzung stärken. Weil die Implementierung neuer Versorgungsmodelle in die Praxis anspruchsvoll ist, gilt es zu wissen, wie praxis- und systemrelevante Veränderungen effektiv unterstützt werden können. Bisher fehlt eine solche angewandte Implementierungsforschung in der Schweiz.

Diese Dissertation schliesst anhand dreier Studien einige dieser Lücken. Studie A analysiert die Methode der "Learning Collaboratives", die sich mit der Implementierung neuer Versorgungsmodelle befasst. Aufgrund der Ergebnisse lässt sich ein Transformationsmodell entwickeln, um "Patient Centered Medical Homes" in Assistenzpraxen einzuführen. Studie B analysiert die Organisation klinisch-kommunaler Netzwerke und erlaubt es, sechs zentrale Bausteine für erfolgreiche Partnerschaften herauszukristallisieren. Studie C analysiert die Gesundheit von Sexarbeiterinnen und zeigt aufgrund deren signifikant häufigeren psychischen Erkankungen und psychosozialen Bedürfnisse im Vergleich zur Durchschnittsbevölkerung die Notwendigkeit einer intersektoralen Versorgung auf.

Abstract

Health policy challenges, such as the increase in chronic diseases, require the transformation of the fragmented and acute care-oriented healthcare system into a collaborative, coordinated system to improve population health. As health is a result of many determinants, healthcare cannot bring about better health without partnering with services outside the medical sector to address the various determinants. Such comprehensive health approaches must understand and address the complex needs of all groups in the population and require new care models to strengthen primary healthcare and clinical-community partnerships. As new care models are difficult to implement in daily practice, there is a need to know how to support and facilitate those practice and system-wide changes. To date, there is a lack of such application-oriented implementation research in Switzerland.

The aim of this thesis was therefore to fill some of these gaps by conducting three studies. Study A analyzed the concept of Learning Collaboratives to implement new primary care models and developed a common framework for Patient Medical Home transformation within Academic Health Centers (AHCs). Results show that Learning Collaboratives support change and lead to important changes in culture, such as improvement in orientation and interprofessional collaboration. Study B analyzed how clinical-community partnerships are organized and developed six key building blocks for successful partnerships. Study C analyzed the health of female sex workers and showed, based on the significantly higher rates of mental disorders and unmet psychosocial needs compared with the general population, the importance of intersectoral collaboration and care.

Acknowledgments

At this point, I would like to express my gratitude to everyone who has contributed to the successful completion of this thesis.

Firstly, I would like to acknowledge that part of this thesis is due to the “Harkness Fellowship in Healthcare practice and policy” that was funded by the Careum Foundation (CH) and organized by the Commonwealth Fund (USA). My special thanks go to my mentors during my Fellowship in the United States, Prof. Dr. Russell Phillips and Prof. Dr. Bruce Landon, who have supported my studies during my stay at Harvard Medical School in Boston.

Next, I would like to thank my supervisors Prof. Dr. Urte Scholz and Prof. Dr. Thomas Rosemann who have provided me with utmost valuable support throughout recent years. They were always prepared to discuss important matters, but showed confidence in my autonomous working. I am deeply grateful for this collaboration.

Lastly, I am grateful for all the support that I received from the people around me: my critical friend Roger Keller, my parents and friends, who have supported and encouraged me. Above all, my deep appreciation goes to my partner Bernhard Probst, who has accompanied me in recent years.

Table of Contents

List of Figures

List of Tables

CHAPTER I

Concepts of transformation in healthcare to improve population health

1. Introduction

Changes in patient populations (demographic aging) and, in particular, an increase in non-communicable diseases (NCD) are confronting healthcare systems in Switzerland and worldwide with the need to provide high-quality care which remains affordable and accessible (Lancet, 2009, 2015; OECD, 2013; B. W. Ward et al., 2014; World Health Organization, 2013). NCDs are not only the main cause of morbidity and mortality, but are also responsible for the 80% of healthcare costs (G. Anderson, 2010; Wieser et al., 2014). Increases in the burden of chronic diseases result from several risk factors and population demographics, including aging and health disparities. Many chronically ill patients suffer from difficult socioeconomic factors, disabilities, and comorbid conditions that need complex and coordinated care provided by an array of health professionals and communal services (Anderson & Knickman, 2001; Stellefson, Dipnarine, & Stopka, 2013; Tsai, Morton, Mangione, & Keeler, 2005; Wagner, 2001). Their illness is often influenced by various determinants, such as education, income or health literacy that have an important impact on health (Bambra et al., 2010 ; Halpin, Morales-Suárez-Varela, & Martin-Moreno, 2010; Marmot, Friel, Bell, Houweling, & Taylor, 2008).

Switzerland's highly developed, but fragmented healthcare system remains strongly focused on the treatment of acute diseases and is not fully capable of meeting the described emerging challenges (OECD, 2011; Schoen, Osborn, How, Doty, & Peugh, 2009). This makes it unprepared to address the multifaceted and complex needs of chronically ill, frail, elderly or other vulnerable groups that require coordinated and comprehensive care within their daily lives that often goes beyond medical care (Anderson & Knickman, 2001; Institute of Medicine, 2001). Therefore, the Swiss healthcare system has to be reorganized in a way that fosters collaboration and allows improved coordinated care, higher quality and reduced costs to be achieved. This requires system-wide transformation from an in-patient, acute and individual-

centred perspective towards collaborative and integrated healthcare delivery with a focus on population health and equity of care. To enable this, new integrated models of care need to be implemented that are able to bundle strategies, services and interventions to address the many risk factors and conditions simultaneously and help the population subgroups most affected. Given the need for continuity, comprehensiveness and coordination, primary care has been suggested to play a central role as a low threshold contact point for the whole population for effective management and integration of care (Bodenheimer, Grumbach, & Berenson, 2009; Rothman & Wagner, 2003).

In contrast to Switzerland, the U.S. has a long tradition of healthcare services research, testing new primary care models, such as Chronic Care Model (CCM) or the Patient Centered Medical Home (PCMH) through scientifically monitored, well-evaluated pilot projects (Centers for Medicare & Medicaid Services, 2017) . From the perspective of universally accessible, high-quality primary care emphasizing team-based and coordinated care, the Patient Centered Medical Home (PCMH) model has proved particularly valuable (G. L. Jackson et al., 2013; Starfield, 2001) with the potential to transform the healthcare system as a whole (Bodenheimer, Grumbach, et al., 2009). It has therefore been used widely to guide system-wide primary care design (G. L. Jackson et al., 2013; Landon, Gill, Antonelli, & Rich, 2010; Piette et al., 2011; Rittenhouse, Thom, & Schmittdiel, 2010). The need to address all determinants of health and to promote population health has led to the collaboration of clinical and community services over recent years (Institute of Medicine, 2012). Models such as the clinical-community partnerships are still in their infancy and need to be described and studied much more rigorously.

However, the several demonstration initiatives in the U.S. have shown that regardless of the kind of care model, the real challenges lie in the concrete implementation in everyday practice, as change processes of this kind call for a range of behavioural, managerial and system-related changes and always take place within a complex system (Nutting et al., 2011;

Wagner et al., 2012). Studies have confirmed that new models often are implemented inadequately and need therefore concrete support in implementation (Crabtree et al., 2011). Since all these implementation efforts require not only changes in the organizational processes, but also social, cultural adjustments, it is of utmost importance to understand what kind of support and incentives are needed to foster these transformation efforts (Rothman & Wagner, 2003). To date, these questions have been studied insufficiently (Noble, Greenhalgh, & Casalino, 2014; Shortell, 2013; Welton, Kantner, & Katz, 1997).

Switzerland has for many years had difficulty in implementing the necessary reforms, and integrated models are still rare. There is no established health services research yet that allows us to understand how to facilitate the implementation of new care models or to assess comprehensively the health needs of specific groups of the population. Evidence is therefore lacking concerning promising integrated care models suited to the Swiss context, as well as experience and expertise in the effective implementation of those and in the facilitation of such system-wide change processes. There is a need for research to fill this gap.

The aim of this thesis is therefore to study the implementation of integrated care models to improve population health in the US as a first step to gain insights and inputs about promising care models that might be subsequently tested and implemented in Switzerland. In addition, this thesis is intended to close some of the described gaps in research by identifying successful (health policy) measures to support and facilitate the implementation of new care models and corresponding change processes.

For this purpose, three studies were conducted. Two studies, A and B, contribute to an improved understanding of successful implementation of new integrated care models and developed a conceptual implementation framework that can be sunsequently tested in practice in Switzerland. Study A focuses on the implementation of the Patient Centered Medical Home (PCMH) as a well-evaluated and promising primary care concept and analyzes how the concept of Learning Collaboratives can be used to support the necessary redesign of primary care and

training in Academic Health Centers. Study B investigates how clinical-community partnerships - as a highly recommended but not yet evaluated concept of collaboration to improve overall population health - can be successful developed.

Study C finally contributes to a comprehensive, biopsychosocial understanding of health as a prerequisite for appropriate care and equity in healthcare by analysing mental health, including influencing determinants of health of a marginalized group, such as female sex workers. All studies belong to the field of health services research.

The thesis is divided into five chapters and has the following structure. First, Chapter I provide a theoretical background to the main concepts and theories into which the subsequent studies are embedded. Then, an overview of the research questions and the studies conducted is given. In Chapters II, III and IV, the three research articles are presented in detail. Finally, Chapter V provides a comprehensive discussion of the major results and overall interrelations, limitations and strengths, as well as implications for future research and practice with a focus on health policy.

2. Theoretical Background

The theoretical background of the thesis is outlined in this section and the main concepts, models and theories are described and potential demands for further research are identified. Firstly, the concepts of population health and equity in healthcare are presented as leading principles of a sustainable healthcare system. Secondly, the Patient Centered Medical Home model and integrative approaches of clinical-community partnerships to improve population health are illustrated. Furthermore, the concept of change facilitators and learning collaboratives as an important method to support change processes are introduced. Finally, Academic health Centers as important places of change to create the necessary workforce in the future are described.

2.1 Population Health

Population health is defined as (Kindig & Stoddart, 2003, p. 381) ,

> the health outcomes of a group of individuals, including the distribution of such outcomes within the group. These groups can be geographic populations such as communities, but can also be other groups, such as ethnic groups, disabled persons or any other defined group.

Health is seen "as a state of complete physical, social and mental well-being" based on the definition of the WHO (World Health Organization, 1946, p. 100). This comprehensive concept of health considers not only physical and mental aspects, but includes further individual and social resources (e.g. social inclusion) and coping behavior. Population health is therefore influenced by a broad set of determinants (environmental, social, economic, cultural, behavioral, biological). Medical care is only one of many factors that affect those outcomes. In fact, as little as 10 percent of health outcomes may be influenced by medical care, with 60 percent stemming from a combination of personal behaviors and environment (Kaiser Permanente, 2013; Shortell,

2013). Healthcare alone will therefore not lead to better health without addressing the economic and social realities people live in (Bambra et al., 2010 ; Dahlgren & Whitehead, 1991; Halpin et al., 2010; Marmot et al., 2008). In “America's Healthcare Paradox”, Bradley and Taylor use international comparisons to demonstrate that more balanced spending on healthcare and social services correlates with better health outcomes and that ignoring the economic and social circumstances that result in poor health makes treating the resulting downstream health problems much more expensive and shifts the burden of addressing these problems to a healthcare system that simply is not equipped to address them effectively (Bradley, Elkins, Herrin, & Elbel, 2011; Bradley & Taylor, 2013).

This perspective recognizes that responsibility for population health outcomes is shared and requires a health system based on effective collaboration between clinical and communal services (e.g. social services, addiction counselling) to address all determinants of health and to achieve collective impact (Institute for Health Technology Transformation, 2012; Stoto, 2014). Therefore, the Institute of Medicine on 2012 called for the integration between primary care and public health services, encompassed as *clinical-community partnerships*, as a way of improving health outcomes and reducing disparities. This rather new perspective has led to several initiatives in the U.S. aiming to develop the required integration of services to improve population health. These initiatives are emerging mostly in response to local needs and developed without a change strategy or framework to support a targeted implementation. To date, these initiatives have not been studied in more detail and research is missing that analyses how successful clinical-community partnerships can be achieved. It is therefore of critical importance to analyze how clinical-community collaboration is organized (Noble et al., 2014; Shortell, 2013; Welton et al., 1997) and to develop a theoretical framework to support these kinds of partnerships.

2.2 Disparities and examples of vulnerable groups

It is important to recognize that improving population health means improving the health of all groups. Not only social determinants impact the health outcomes of specific populations. There are several other factors, such as race or ethnicity, sex, sexual identity, age, disability and geographic location that contribute to an individual's ability to maintain good health. Often disparity or inequality (used interchangeably in this thesis) need to be assumed, when health outcomes differ between population characteristics (Office of Disease Prevention and Health Promotion, 2014). Equity in health care is further defined as equal access to the available care if there is equal need (Dahlgren & Whitehead, 1991; Whitehead, 1992). Pursuing health equity therefore means pursuing the elimination of such health disparities/inequalities (Braveman, 2006). Several studies have shown that disadvantaged social group (such as the poor, racial/ethnic minorities, young or old people) persistently experience social disadvantage or discrimination and therefore systematically experience worse health or health risks than more advantaged social groups (Egede, 2006; Institute of Medicine, 2001; Schoen & Doty, 2004; Wagner, 2001). This is inefficient and expensive, as they require much more care in the end, due to increased complex and multimorbid diseases and complications. It is also ethically questionable, as health is a fundamental right for all and not a privilege for a few. Good population health is further a source of social and economic stability in a country. Research about the social gradient in health has shown that population health becomes continually better as the socioeconomic position of people and communities improves. Thus health inequities affect everyone and is a global phenomenon that applies to all countries (World Health Organization, 2013). An effective health system at reasonable costs need therefore to pay attention to aspects of equity, such as access to care and to assess health comprehensively, including mental health and the living conditions of vulnerable groups to design appropriate care for all groups. To date, there are several vulnerable groups, such as female sex workers

that face difficult social realities, violence and other unfavorable working and living conditions with assumed negative effects on health (Deering et al., 2014; Romans, Potter, Martin, & Herbison, 2001). From the limited research in this field, it must be expected that this group is under-supplied and female sex workers suffer from several health inequalities.

2.2.1 Female sex workers

Sex work is defined as "the execution of a sexual service for a fee or other economic or material benefits" (Krüger, 2001, p.10). Sex workers are a very heterogeneous group that can be categorized depending on a) frequency of participation (temporary, occasional or continuous), b) work settings (private apartment, club, brothel, salon, car, cabaret or street) or c) the reason for sex work (self-determined or forced) (Goldstein, 1979). Thus, they are not a homogeneous group with common social background and their motives to engage in the sex trade are determined by very different reasons. For example, procurement prostitutes or migrant sex workers are particularly disadvantaged women who often do not carry out their work in a self-determined way. While, procurement prostitutes are often drug addicted and migrant sex workers are often forced into prostitution, they suffer from similar problems, such as extortion, violence and abuse experiences and further from illegality and social isolation (Krüger, 2001; Lazarus et al., 2012; Zumbeck, 2001; Zumbeck, Teegen, Dahme, & Farley, 2003). They are often pacified with psychological and violent means and isolated without the possibility of seeking external assistance (Deshpande & Nour, 2013). Seeking help seems to be difficult, as they often suffer from communication difficulties, such as the absence of language skills and a lack of knowledge about existing health and other support services (Obrist, Twisselmann, Wicki, & Aids-Hilfe, 1996). In the case of a business arrangement, they often have to pay the dealers high fees and travel expenses, making them heavily indebted and easy to blackmail (Ackermann & Filter, 1994). It therefore has to be assumed that sex work is accompanied by a number of health

problems and that sex workers, as a multiple marginalized group, suffer severe health disparities (Krüger, 2001; Love, 2015). However, research in this area faces several limitations (Cwikel, Ilan, & Chudakov, 2003; Day & Ward, 2001; Krüger, 2001; Potterat et al., 2004). It has long been perceived only in the context of sexually transmitted diseases, especially in the context of HIV / STD prevention. (Baral et al., 2014; Brogly, Bruneau, Lamothe, Vincelette, & Franco, 2002; L. Jackson, Highcrest, & Coates, 1992; Larney, Mathers, Poteat, Kamarulzaman, & Degenhardt, 2015; Minichiello, Marino, & Browne, 2001; Pyett & Warr, 1997; Steen & Dallabetta, 2003). Previous studies have focused on specific mental diseases, such as post-traumatic stress disorder or substance abuse (Chudakov, Ilan, Belmaker, & Cwikel, 2002; Farley & Barkan, 1997; Farley et al., 2004; Romans et al., 2001; Strathdee et al., 2015; Zumbeck et al., 2003). The results, however, suggest that women suffer from other mental impairments, such as depression or personality disorders, that require psychiatric treatment, which need to be examined more closely (Bodkin, Delahunty-Pike, & O'Shea, 2015). Health inequalities, such as reduced access and use of health services by sex workers has been paid little attention so far (Lazarus et al., 2012; Vuylsteke et al., 2001), although sex work is often connected to a life characterized by violence, as well as labor and legal uncertainty that correlates with an increased health risk (Cwikel et al., 2003; Day & Ward, 2001; Ditmore & Saunders, 1998; El-Bassel, Witte, Wada, Gilbert, & Wallace, 2001; Javidi & Yadollahie, 2012; Mardh, Shoubnikova, Genc, Chaplinkas, & Unzeitig, 1999) and a six-times increased mortality among sex workers (Potterat et al., 2004). Sex workers often face barriers to healthcare given their occupational stigma or because health professionals feel unprepared to deal with sex workers (S. P. Thomas, 2013). There also seems to be a lack of appropriate care for sex workers in healthcare (Scorgie et al., 2013; Vuylsteke et al., 2001). It is therefore not surprising that there are hardly any studies on the (better) inclusion of sex workers in a social and medical care system.

In summary, it has to be stated that in research little is known about the health of female sex workers nor about the access to the different segments of sex workers. The higher risk of

physical and sexual assault, the accumulation of posttraumatic disorders, drug abuse and other health constraints identified in the previous studies, makes it crucial to assess their overall mental health (Krüger, 2001; Lazarus et al., 2012; Zumbeck, 2001; Zumbeck et al., 2003). To be able to develop the appropriate care for a vulnerable groups, such as sex workers, it is important to understand their health needs in context with their living and working conditions, as important determinants of health (Bodkin et al., 2015). Finally there is a need to understand how to reach this group (Krüger, 2001; Lazarus et al., 2012). This thesis contributes to filling the research gap described.

2.3 Integrated and Primary Care

Integrated care is defined as the connection of "the healthcare system (acute, primary medical and skilled) with other human service system (e.g. long term care, education and vocational and housing services) to improve outcomes (clinical, satisfaction and efficiency)" (Leutz, 1999, pp. 77-78). Integration, according to this definition, is not meant to merge, but to bring together inputs, delivery, management and organization of services to improve access, quality, user satisfaction, efficiency and most importantly population health (Kodner & Spreeuwenberg, 2002).

Given the important integrative functions, such as being the "point of first contact", primary care has been highlighted as the backbone of any integrative healthcare system (Starfield, Shi, & Macinko, 2005). The report of the Institute of Medicine (IOM) defines Primary Care as "the provision of integrated, accessible healthcare services by clinicians who are accountable for addressing a large majority of personal healthcare needs, developing a sustained partnership with patients, and practicing in the context of family and community" (Institute of Medicine, 1994, p. 2). This definition highlights the importance of primary care to provide continuous, comprehensive and coordinated care and to connect with other community

services (Starfield et al., 2005). Several studies have shown that health systems built on the principles of primary care achieve greater equity and better health than health systems based on specialty care (Starfield & Shi, 2002; Starfield et al., 2005). However, research on current primary practice suggests that patients often receive inadequate care, with limited disease management, and little coordination and communication among care providers and community services (Martinez, Berchtold, Busato, & Egger, 2012; Schoen et al., 2011). The payment structure incents procedures and volume of visits over value of interaction (Bodenheimer, Grumbach, et al., 2009; Koshy, Conrad, & Grembowski, 2015) and the shortage of primary care physicians leads to little time for patient contact given the enormous patient population. The average time of fifteen minutes per visit is not sufficient to follow guideline-oriented long-term care (Tai-Seale, McGuire, & Zhang, 2007). The current models of primary care are therefore often inadequate (e.g. too many solo practices, no guideline-oriented approach) to provide quality of care and to fulfil the required integrative role (Starfield, 2001). Health policy reforms in the U.S. and in Switzerland (e.g. "masterplan primary care"1) therefore call for strengthening of integrative care and promotion of a higher proportion of primary care clinicians than now exists. These have led to several demonstration projects in the U.S. to implement new integrated care models. The most important models are described in the next chapter.

2.4 Models of integrated care

Integrated care (synonyms: integrated health, coordinated care, comprehensive care, seamless care and transmural care) focus on various inter-sectoral and inter-professional forms of collaboration in care provision (Wikipedia, 2015), classified in this thesis as clinical-

[1] Masterplan to strengthen family medicine and primary care guided by the Swiss Federal Office of Public Health in collaboration with the players involved in practice: http://www.bag.admin.ch/themen/berufe/13932/13933/14198/

community partnerships and used interchangeably. There are various forms of integrated care ranging from the Patient Centered Medical Home with a selective cooperation with community services to fully accountable Health Communities. To better understand the various degree/stages of clinical-community partnerships, a taxonomy is given by the Rainbow model described in the chapter below.

2.4.1 The Rainbow Model

The Rainbow Model of Integrated Care presented in *Figure 1*, can be used as a theoretical framework or taxonomy to categorize the complexity of integrated care. It merges the primary care and integrated care literature into a comprehensive picture and incorporates the conceptualization of primary care's core value: the integration of the biomedical, psychological and social dimensions of health, expressed as *person-focused* and a *population-based view* (Valentijn et al., 2015). The *person–focused view* includes the psycho-social condition of the patient, as well as the patient himself as a co-creator in the care process (Stewart, 2001). *Population-based care* aims at addressing all health-related needs in a defined population. This implies that services need to be based on the health needs and characteristics of a population, including their economic and social characteristics, to improve an equitable distribution of health. This is especially important for socially disadvantaged subgroups with higher burdens of morbidity (Starfield et al., 2005).

The model presented in *Figure 1* distinguishes six integration dimensions (system, organizational, professional, clinical, functional and normative integration): (a) the *system level* requires the connection of structures, processes and services to meet the needs of the population served across the continuum of care. Due to the fragmented system, this requires collaboration across traditional organizational and professional boundaries. The integration of primary care and public health is therefore a typical example for this kind of horizontal system integration.

(b) The level of *organizational* integration refers to the extent in which services are produced and delivered in a linked way. The degree of organizational integration is often described as a continuum, ranging from segregation to full integration. Accordingly, the governance structure ranges from tight hierarchical governance structures to semi-accountable networks, to loose coordination. Especially chronic ill patients depend on a close collaboration. However, the broad spectrum of organizations needed to assure good health in a population makes organizational integration complicated, as health and social care often differ in terms of culture, professional roles and approaches. (c) *Professional* integration refers to inter-professional partnerships based on shared competences, roles, responsibilities and accountability to provide continuous, comprehensive and coordinated care over the whole continuum of care, within and between organizations. These partnerships can take various forms of vertical and/or horizontal integration, which are driven by the shared responsibility to provide continuous, comprehensive and coordinated care. In populations with a high burden of chronic diseases, an array of professionals from different sectors and disciplines is needed. (d) *Clinical* integration refers to the process of care delivery to individual patients, such as to the extent to which the services are coordinated across various professional and institutional boundaries in a clinical system (Valentijn et al., 2015; Valentijn, Schepman, Opheij, & Bruijnzeels, 2013). (e) *Functional* integration supports and links the clinical, professional, organizational integration within a system (macro-level). This means that it links the financial, management and information systems around the process of service delivery, to coordinate and support accountability and decision-making between organizations, patients and professionals. The (f) *normative* integration provides a common frame of reference that links the micro, meso and macro level to achieve connectivity between all levels of an integrated system and facilitates inter-sectorial collaboration. It is influenced by the professional behavior and attitudes, values, culture and goals across the players involved. A clear mission and vision, mutual share goals and an integrative culture are essential and can be created by leadership (Valentijn et al., 2015).

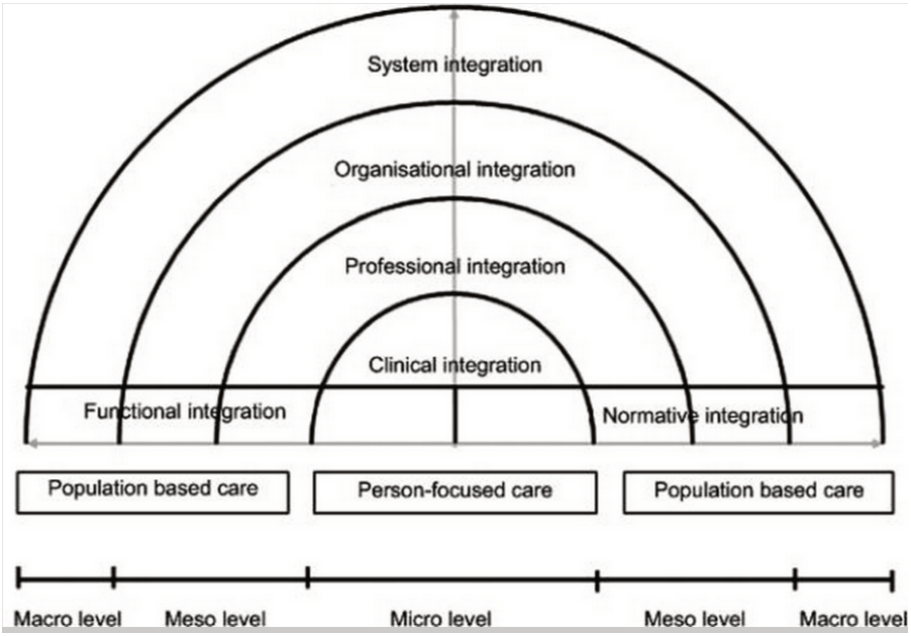

Figure 1: Adapted from "Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care."
by P.P. Valentijn, et al., 2013, International Journal of Integrated Care, 13, p. 8, Copyright 2013 by Pim P. Valentijn. Adapted with permission.

Integrated models can vary highly regarding their type and stage of integration. After several years of person-focused healthcare based on clinical integration, research has shown that population- based care requires more than clinical integration and needs to connect with the community (Armitage, Suter, Oelke, & Adair, 2009; Hildebrandt et al., 2015; P. Thomas et al., 2008). In their tradition of health services research, health policy initatives in the U.S. have tested and evaluated various care models (e.g. Chronic Disease Model, Patient Centered Medical Home, Accountable Care Organizations) that incorporate an integrative function and may serve as a basis for clinical-community partnerships (Daly, 2013). The **Chronic Care Model** is a concept developed to redesign care delivery for individuals living with *chronic diseases* in primary care (Wagner et al., 2001; Wagner, Austin, & Von Korff, 1996). It has been widely adopted and evaluated, with results showing that it improves patient care and clinical outcomes, and reduces care utilization and costs (Coleman, Austin, Brach, & Wagner, 2009;

Jacobson & Gance-Cleveland, 2011; Kadu & Stolee, 2015; Pasricha et al., 2013; Stellefson et al., 2013). Another promising model is the Accountable Care Organization (ACO). This is a new healthcare payment and delivery model designed to improve care and lower costs in which a group of doctors, hospitals and other healthcare providers agree to be accountable for the quality, the overall care and costs of a defined patient panel (Centers for Medicare and Medicaid Services; Council of Accountable Physician Practices, 2011). ACOs have been proceeding rapidly in the last years with promising outcomes, but results are still at an early stage and long-term studies are missing (Fisher, Shortell, Kreindler, Van Citters, & Larson, 2012; Lewis, McClurg, Smith, Fisher, & Bynum, 2013; McBride, 2013). While the Chronic Care Model focuses on chronic patients, the focus of ACOs lies on the payment mechanism and there is no clear delivery model that could be transferred yet. From the perspective of a well-evaluated, low-threshold, high-quality primary care deliver model with a clear implementable concept, the Patient Centered Medical Home (PCMH) model is therefore the most promising model (G. L. Jackson et al., 2013). It incorporates the principles of the Chronic Care Model and adapts it to the full range of patient-oriented primary healthcare. The PCMH has therefore been selected to guide system-wide transformation in the U.S. (Bodenheimer, Grumbach, et al., 2009) and has also been choosen as the leading primary care concept in this thesis, described in more detail in the next chapter.

2.4.2 The Patient Centered Medical Home

A Patient Centered Medical Home (PCMH) is defined as an approach to provide a comprehensive primary care and healthcare setting that facilitates partnerships between individual patients, their personal physicians and the patient's family or other services (Agency for Healthcare Research and Quality, 2016). Responsibility for patient care is owned by the team that is managed by the general practitioner (GP) and in which the patient is an important

member of the team. The long-term health needs of the patient are taken into account. (Institut für Hausarztmedizin, 2016). The PCMH is described by the following five Principles of the Patient Centered Medical Home (American Academy of Family Physicians, 2007) and the Agency of Healthcare Quality (Agency for Healthcare Research and Quality, 2016):

(1) **Comprehensive care:** each patient has an ongoing relationship with a personal physician who provides first contact, continuous and comprehensive care. The personal physician manages care within the practice and collectively takes responsibility for the ongoing care of patients. (2) **Whole person orientation**: the care team provides comprehensive care at all stages of life, such as acute care, chronic care, preventive services and end-of-life care. (3) **Coordinated and integrated care**: practices ensure that patients receive coordinated and/or integrated care across all necessary elements of the complex healthcare system (e.g., subspecialty care, hospitals, home health agencies, nursing homes) and the patient's community (e.g., family, public and private community-based services). (4) **Focus on quality and safety:** Practices are committed to quality and quality improvement by ongoing commitment in activities such as evidence-based medicine, clinical decision-support tools, as well as participating in performance measurement and improvement process and practicing population health management. (5) **Enhanced access** to care is available through systems, such as open scheduling, extended hours and new options for communication between patients, their personal physician, and the care team.

The scientific results on the effectiveness of Patient Centered Medical Homes are promising. Various studies showed that the PCMH in primary care has worked well for the general population, but also for particularly vulnerable groups with chronic illnesses (Bitton, Martin, & Landon, 2010).

From the perspective of universally accessible, high-quality primary care with an emphasis on team-based care, comprehensive patient focus, self-management support and coordination of care, the PCMH model has proven to be particularly valuable (G. L. Jackson et

al., 2013). Various studies have demonstrated positive effects on clinically relevant outcomes (e.g. patient experience, staff experience, process of care, clinical outcomes, economic outcomes) (Beal, Doty, Hernandez, Shea, & Davis, 2007) and improved patient safety and system efficiency (Institute of Medicine, 2001; Scholle, Saunders, Tirodkar, Torda, & Pawlson, 2011).

From an integration perspective, the Patient Centered Medical Home provides an important basis for further system-wide integration, while implementing well-defined principles of integrated care such as inter-professional, patient centered and continuous care that is coordinated, transparent and focuses on quality improvement and the use of guidelines (Bundesamt für Gesundheit, 2009). This comprehensive approach has therefore been described as a "lifeline for primary care", with the potential to transform the health system as a whole (Bodenheimer, Grumbach, et al., 2009) and has been widely implemented to guide system-wide primary care redesign in a complex health system (G. L. Jackson et al., 2013). Consequently, numerous pilot projects and demonstration programs have been carried out in the US in recent years to promote PCMH in various settings with the involvement of different service providers (Landon et al., 2010; Piette et al., 2011; Rittenhouse et al., 2010). A meta-analysis (J. W. Williams et al., 2012) confirmed the positive results, but revealed massive institutional and regional differences in implementation. It is therefore of utmost interest to understand how implementation can be improved.

2.4.3 Accountable Health Communities

The most comprehensive system-wide integration and therefore most comprehensive form of *clinical-community partnerships* can be described with the concept of the “Accountable Health Community”. This model is based on the concept of Patient Centered Medical Homes, but implies that this concept needs to be expanded to include the entire community in which patients

live and work. In this enhanced model, a defined “health community” is responsible for quality healthcare delivery and improving the health of the community it serves. In this paradigm shift, healthcare providers are becoming part of the solution in addressing the social determinants of health and the causes of health inequity (Cantor et al., 2011; Prevention Institute, 2011).

The concept of the Accountable Communities for Health (ACH) is based on the same idea, but goes a step further, as they include the whole community perspective and consider the total investment in health across all sectors. The approach embeds the “accountability question" normally discussed in healthcare delivery in a community context where multiple stakeholders come together to share responsibility for tackling multiple determinants of health. Such Accountable Health Communities organize and operate a community-wide coalition to address the community health needs to meaningfully impact health (Tipirneni, Vickery, & Ehlinger, 2015). This coalition is fully responsible (accountable), not just for total cost of healthcare, but also for the total investment in health across all sectors and the integration of services. In the taxonomy of the rainbow model, the Accountable Health Communities are the most comprehensive form of system-wide integration. The concept of the Accountable Health community has not been examined in research yet, as it is still on a conceptual and mostly visionary level, but is particularly relevant in understanding the discussion about clinical-community integration and corresponding "clinical-community partnerships" as a way of improving population health described in chapter 2.1.

2.5 Change processes in healthcare and change concepts

The implementation of new care models like the Patient Centered Medical Home (PCMH) calls for a range of behavioral, management and system-related changes within a complex system. Thus, in many cases, even highly motivated service providers find it difficult – owing to a lack of knowledge and resources – to implement the necessary changes in day-to-day operational

practice (Agency for Healthcare Research and Quality, 2016; Carrier, Gourevitch, & Shah, 2009; Dehnel et al., 2010; Kilo & Wasson, 2010; McAllister, Presler, Turchi, & Antonelli, 2009; Meyers, Quinn, & Clancy, 2011; Wagner et al., 2012; Weiss, 2013). Policymakers are therefore beginning to recognize that the current training of health professionals, as well as the consultation models typically used for small and large-scale implementation of care concepts in practices, are insufficient and that without concrete practical support and technical assistance of the concerned organization, practices often do not succeed (Mancini et al., 2009; Nadeem, Olin, Hill, Hoagwood, & Horwitz, 2013; Rittenhouse et al., 2010; Schoenwald & Hoagwood, 2001; True et al., 2013). This recognition has led to different methods of providing change facilitation to support successful implementation. The most promising approaches are described in the next chapters.

2.5.1 Change Facilitation

One method of providing support, known as *practice* or *change facilitation*, is seen as an especially promising strategy to support the transformation process. Practice facilitators are external agents who work with primary care practice teams to make meaningful changes with the goal of improving quality and outcomes of care (Agency for Healthcare Research and Quality, 2016). They have a key role in helping individuals and teams understand what they need to change and how they need to change it (Harvey et al., 2002). The concept is based on the recognition that successful practice development begins with changes that strengthen practices' core, build adaptive reserve (e.g. action and reflection cycles, facilitative leadership, a learning culture, effective communication) and expand attentiveness to the local environment (Miller, Crabtree, Nutting, Stange, & Jaen, 2010). According to a meta-analysis, practice facilitation has a robust effect on evidence-based guideline adoption within primary care. Type,

intensity and tailoring of interventions (training, support materials, coaching) by facilitators were found to be important determinants of effectiveness (Baskerville, Liddy, & Hogg, 2012).

In the light of these findings, demonstration projects in the US have begun to focus on practice redesign supported by change facilitators. A key component of these pilots is the use of practice facilitators – also known as practice transformation facilitators (PTFs) or "practice coaches". These facilitators work with individual health organizations and guide them through this transformation, most often with the goal to become NCQA[2]-recognized Patient Centered Medical Homes (National Committee for Quality Assurance). The Agency for Healthcare Research and Quality of the U.S. Government has developed several change support materials to facilitate this kind of transformation (Knox, 2011). Often these practice facilitators are included within "Learning Collaboratives" (Bitton et al., 2014; Institute for Healthcare Improvement, 2003, 2005. ; Langley, Nolan, Nolan, Norman, & Provost, 2009; Nadeem et al., 2013), another promising method for change, explained in the next chapter.

2.5.2 Learning Collaboratives

In this chapter, the Model of Learning Collaboratives and important theories that influenced the development of Learning Collaboratives will be explained. Furthermore, the underlying mechanism of change and important components are described. Understanding the mechanism of change, the collaborative and learning culture and impact of these Learning Collaboratives on change processes is important to understand research about transformation facilitation.

A learning collaborative is a method for management, learning, and improvement of processes (MacDonald-Wilson & Nemec, 2015) in various fields of application. This concept was influenced by motivational and social constructivism theories and is based on three main

[2] The National Committee for Quality Assurance (NCQA) is a private, not-for-profit organization dedicated to improving healthcare quality. - See more at: http://www.ncqa.org/AboutNCQA.aspx#sthash.zfoBvvav.dpuf

concepts: a) collaborative learning, b) social learning systems and c) Quality improvement methods, described below:

Collaborative learning is a method of teaching and learning in which two or more people learn something together and work together toward a common goal by capitalizing on one another's resources and skills, such as asking one another for information, evaluating one another's ideas or monitoring one another's work. This type of learning is also known under various other names, such as cooperative learning, collaborative learning, collective learning, learning communities, peer teaching, peer learning, or team learning. In such a collaborative learning setting, teachers become learners at times, and learners sometimes teach. This is a striking contrast to the classical teaching environment, such Academic Health Centers based on top-down teaching methods. Motivational theorists argue that the inherent structure of cooperative learning creates an environment which motivates learning, whereas the social constructivists highlight the importance of social discourse of learning, as a process in which knowledge is constructed and transformed by students (Bruffee, 1999).

A former work of Wenger about **social learning systems** highlights the potential power for change of these learning communities. He argues that the success of organizations depends on their ability to design themselves as learning systems as well as to participate in a broader learning system such as a region (Wenger, 2000). The most important part of social learning communities are multidisciplinary teams working together to meet a shared goal. In theory, teams can outperform the "smartest" individuals or groups when multiplex tasks require a wide range of skills, experiences, and ideas (Katzenbach & Smith, 2003). Research has shown the importance of social networks and multidisciplinary teams in driving innovations that have led academic fields and industries to develop a capacity to source knowledge by learning from collaborations and learning how to collaborate with external partners (Cross & Parker, 2006).

Quality Improvement initiatives have arisen based on research highlighting the potential of continuous quality improvement (CQI) methods as a prerequisite for innovation

and high quality in industry (Nadeem et al., 2013). Based on rigorous analysis of variation in outcomes and processes, industrial quality experts have developed principles and techniques for effective quality improvement. The principles and techniques of quality improvement approaches succeeding in improving manufacturing deficiencies has become well integrated into a number of industries and management practices (Nadeem et al., 2013) and adapted over time for healthcare to improve quality and delivery of care (Berwick, 1989; Laffel & Blumenthal, 1989).

Stimulated by the efforts to improve quality of care, healthcare organizations in the United States, Canada, Australia and some European countries (e.g. UK, Netherlands) have begun to set up quality improvement collaboratives, known as "Learning Collaboratives" based on a specific pattern. Multidisciplinary teams from various healthcare departments or organizations join forces for several months to work in a structured way to improve their provision of care (Schouten, Hulscher, van Everdingen, Huijsman, & Grol, 2008). Over time, the areas of concern have extended to include various issues of healthcare and have become a major way of implementing new concepts, improving process and addressing several of the most pressing issues in healthcare today (Kilo, 1998). Many of these collaboratives were established to resolve a specific healthcare problem and to enhance learning across distinct entities with common interests.

Most Learning Collaboratives are modeled on the Breakthrough Series (BTS) model, also known as the Model for Improvement, developed and continuously improved by the Institute for Healthcare Improvement (IHI) (Institute for Healthcare Improvement, 2003).

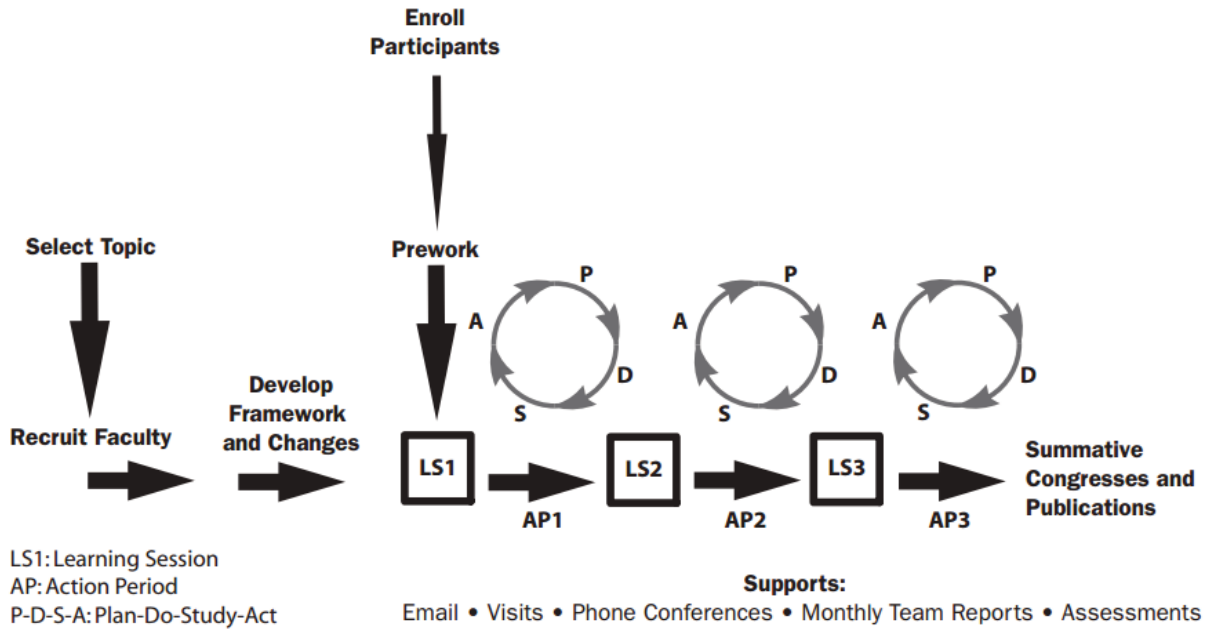

Figure 2: Breakthrough Series Model. Adapted from *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement*.
IHI Innovation Series white paper, by the Institute for Healthcare Improvement; 2003, Cambridge. Adapted with permission.

The key elements of the Breakthrough Series visualized in *Figure 2* include the following elements: A particular area of improvement is selected (select topic) and an expert faculty from the relevant disciplines (recruit faculty) is convened to develop a "change package" of evidence-based practices to improve the selected area (Develop Framework & Changes). In the next step, other organizations or practices are invited to join the effort (Enroll Participants). To help teams prepare for the start of the collaborative process, the Institute for Healthcare Improvement (in the role of a change facilitator) makes prework conference calls with the goal of clarifying the collaborative processes, roles, and expectations of organization leaders and team members (prework). Multidisciplinary teams from participating organizations come together and attend a series of Learning Sessions (LS), where they learn improvement techniques from experts. During the Action Periods (AP) between the Learning Sessions, the various teams test and implement changes in their local settings using Plan-Do-Study-Act (PDSA) cycles in which they investigate quality problems, develop and implement small-scale changes, measure the effects, and make various changes for improvement. While conducting these PDSA cycles,

teams share their experiences and learn from one another by participating in monthly conference calls, team-to-team telephone calls and site visits to other organizations. They further exchange monthly written reports listing improvement activities and posting performance data to the collaborative extranet. The aim of this process and structure is to build collaboration and support throughout the organizations. After the collaborative ends, teams summarize their results and lessons learned, and present them to nonparticipating organizations at conferences (Summative Congresses and Publications) (Institute for Healthcare Improvement, 2003; Kilo, 1998; Langley, Nolan, Norman, Provost, & Nolan, 1996; Nembhard, 2009).

Even though the research about achieving results regarding quality improvement and other specific outcomes is controversial, the method is widely used (Ayers et al., 2005; Kilo, 1998; Schouten et al., 2008; Wilson, Berwick, & Cleary, 2003). This is probably because the focus and strength of the Learning Collaborative is not improving directly patient outcomes, but rather the support of change processes, the collaborative transformation of teams, organizational processes and structures, as well as concomitant culture change. The complexity of culture change in healthcare is an adaptive rather than a technical challenge. Technical problems may be very complex and important, but usually they have known solutions that can be found through current knowledge and through the organization's current structures and procedures. Adaptive challenges, on the other hand, need to be addressed through changes in people's priorities, beliefs and habits (Heifetz, Grashow, & Linsky, 2009). The development of successful practices is therefore associated with internal capability for organizational learning, such as a learning culture and a collaborative effort based on effective practice teams, in research often defined by shared leadership, strong relationships, regular and effective communication (Miller et al., 2010). It would appear that the collaborative structure helps transform work processes and organizational culture, and improve performance through positive relationships and trust (Clancy, Margolis, & Miller, 2013; Gittell, Seidner, &

Wimbush, 2010; Landon et al., 2007). Further positive aspects of Learning Collaboratives are seen in the combination of experts and peers, as well as in the exchange of best practices to facilitate and guide improvement. It has been described as being particularly useful for change and acceptance that best practices are chosen from the experiences of the member of the collaborative (e.g. practitioners) combined with the philosophy of "all teach, all learn", instead of top-down policy or solely expert recommendations (Nembhard, 2009).

These positive results led to the broad use of the concept of learning collaboratives to implement new care models, such as the Patient Centered Medical Home all over the U.S. However, it has rarely been applied to training sites like Academic Health Centers (AHC), described in following chapter, yet, as they differ greatly from outpatient settings (Bitton et al., 2014; Fuchs, 2013; Wagner, 2009).

2.5.3 Academic Health Centers

An academic health center (AHC) is an accredited, degree-granting institution of higher education comprising at least a medical school, one other health professions school or program and an owned or affiliated teaching hospital or health system (Assocication of Academic Health Centers, 2014). AHCs and their teaching practices have traditionally been highly effective in advancing basic and clinical science and have extended the capacity of modern medicine in many ways (Institute of Medicine, 2004). AHCs further play a critical role in overall health system change processes, as they train the workforce of the future and contribute importantly to the changes that are needed. Education and training of health professionals is therefore critical for the sustainable implementation of new models and reform processes must involve AHC in its reform efforts. (Clay et al., 2013; Wartman, Zhou, & Knettel, 2015).

However, many AHCs have struggled to adopt or implement new care models, such as the PCMH, and the way students are trained to work within these new care models (Bitton et

al., 2014). This lack of PCMH implementation in AHC has several negative consequences, in particular that important care principles of new care models are not learned in the training and education of health professionals (Bitton et al., 2010). The PCMH demands several new competences (see chapter 2.2.2), such as inter-professional collaboration or coordinated and continued care that needs to be part of the learning process (Wagner, 2010). The reasons for the lack of implementation are multiple and mostly relate to the complex environment of AHCs, the implementation of which is difficult, however, given the missing continuum of care in teaching hospitals and frequent resident, student and faculty rotations. Primary care teaching practices tend to be under-resourced and efforts focus on educating trainees rather than on creating highly effective systems to support practice (Fernald et al., 2011; Gupta, Davis, & Horton, 2013). AHC-based PCMH transformation efforts ultimately face the challenge of transforming how primary care is delivered while simultaneously training the new workforce and therefore need to transform and redesign both: their traditional approaches in education, as well as their practices, to serve as good a role model (Ricketts & Fraher, 2013).

For some years, multiple factors, such as new regulations related to accreditation and payment, are creating pressure for AHCs in the U.S. to produce higher quality of primary care at lower costs and to deliver the necessary education to its trainees. In order for Academic Health Centers to continue their leadership roles, they need to implement new care models in their teaching practices that allow them to train a health workforce that meets the population's current and future needs. Therefore, some innovative AHCs in the U.S. have launched "Academic learning collaboratives" to redesign both their teaching practices into PCMHs and their residency training (Fernald et al., 2011; Green, Jones, Fetter, & Pugno, 2007; Gupta et al., 2013; Jortberg et al., 2014; Reid, Baxley, Stanek, & Newton, 2011). To date, these endeavors are not well described or understood and there is no clear roadmap forward for teaching practices and faculty to follow.

2.6 Conclusion of the theoretical background

The theoretical background describes the importance of a comprehensive health approach and the integration of healthcare and public health (clinical-community partnerships) to transform the healthcare system and foster population health. It further describes promising integrated care models to meet the various health needs as well as promising methods of change facilitation, such as the use of Learning Collaboratives, to support the implementation of those models (e.g. changes of processes, culture).

Several gaps in research have been outlined. On the one hand, studies often tend to neglect stigmatized groups, such as female sex worker, although it has to be assumed that they suffer from several health constraints. Pursuing health equity und improving population health demands the elimination of health disparities and inequalities and needs to study and understand the health needs of all groups. On the other hand, there is little knowledge of how to facilitate transformation efforts and to support the succesful implementation of new integrative approaches, such as PCMH or clinical-community partnerships. Furthermore, PCMH implementation efforts have not yet included Academic Health Centers, even though these settings train the workforce of the future and are therefore highly important to catalyse the necessary changes in the health system. These important gaps in research are addressed in this thesis as described in the following chapters.

3. Research Questions

In the previous chapter the importance of improving population health and of reducing disparities by implementing new models of care were discussed and several gaps in research were outlined. The overall goal of this thesis is therefore to contribute with three studies to addressing the limitations of health services research and to study different aspects for successful implementation of comprehensive healthcare approaches. In this section, a brief overview of the research questions of the thesis is given, which are introduced in more detail in Chapters II, III, IV.

3.1 Study A: Transforming Primary Care Practice and Education. Lessons from Six Academic Learning Collaboratives

As outlined in Chapter 2.4, new care models, such as the Patient Centered Medical Homes, have proven to provide high quality and comprehensive care and foster system-wide change in a fragmented healthcare system. To implement these new models, the concept of Learning Collaboratives is used widely and very successfully to support the necessary change processes. However, current transformation efforts using the concept of "Learning Collaboratives" do not include Academic Health Centers (teaching practices). This has several negative consequences, because AHCs are crucial for sustainable change in healthcare, as they train the workforce of the future. Study A aims at addressing this limitation in research.

The overall goal of the study A (Chapter III) is to identify a common framework or model for medical home transformation within teaching practices using the method of Learning Collaboratives that might be replicated by other Academic Health Centers (AHC). It is intended to learn how AHC-based Learning collaboratives (called "Academic Learning Collaboratives")

transform both primary care practice and trainee education, to understand their aims and accomplishments, and how they were initiated and structured.

The study aims to address following three research questions:

1) How are Learning Collboratives in Academic Health Centers initiated and structured?
2) Which factors enable their implementation and make their work successful and sustainable over time?
3) Are Learning Collaboratives a successful model for change even in complex systems, such as Academic Health Centers?

3.2 Study B: From Healthcare to Health. A Proposed Pathway to Population Health

As outlined in chapter 2.1, health is influenced by many determinants (environmental, social, economic, cultural, behavioral, biological). Improving population health and reducing disparities therefore requires inter-sectoral approaches based on *clinical-community partnerships* to address the various determinants of health. Therefore, several grass-root initiatives have been launched over recent years in the U.S. driven by opinion-leading organizations and innovative healthcare systems. However, these initiatives have not been evaluated systematically and there is a lack of research and knowledge on how such clinical-community partnerships can be successfully developed. Study B (chapter III) therefore aims at overcoming the outlined gap in research and developing a conceptual framework with key building blocks for successful clinical-community-partnerships by analyzing the available practice experience in the field. The study intends to propose a common pathway for change that might help other organizations to follow.

The study pursues the following research questions:

1) How are pioneering health systems organized to improve population health?
2) How are partnerships among community services, public health organizations and healthcare providers developed and organized?

3) What are the essential factors for successful transformation to clinical-community partnerships and is there a common sequenced pathway for change?

3.3 Study C: The mental health of female sex workers

As outlined in chapter 2.2, sex workers are a multiple marginalized group suffering from several health constraints and reduced access to healthcare. Their health needs are often neglected, resulting in a lack of appropriate care. Study C (Chapter IV) aims to overcome limitations of earlier studies and to assess the overall health of female sex workers in Zürich, including their working and living conditions as important determinants of health. The results should be used to design appropriate care and interventions in a further step.

Study C is part of a bigger research project, which pursues the following two objectives:

1. to analyze and describe the overall health of female sex workers in Zürich, including their mental health status, substance abuse and health behavior in the context of their working and living conditions
2. to analyze their health needs, including their need for medical, psychosocial and other counselling services and their access to care and support services to design and enable appropriate care

The corresponding research questions are:

1) What is the (mental health) status of female sex workers of Zürich? Is there a need for medical and mental healthcare or other support services for sex workers in the city of Zürich?

2) Do female sex workers differ depending on the sex work setting in terms of
   - their need for medical, psychosocial and psychiatric health needs?

- working and living conditions?
- coping behavior?
- use of consulting and care services?
- level and need of information regarding counseling and other support?
- reason for undertaking sex work?
- health and other needs (e.g. protection or legal support)?

3) Are there certain variables or influencing factors (e.g. work setting, reason for following the profession) that correlates with poorer mental health?

4) Description of the studies and methodological background

4. Description of the studies and methodological background

To address the above goals and research questions, three separate studies were conducted (see Figure 3).

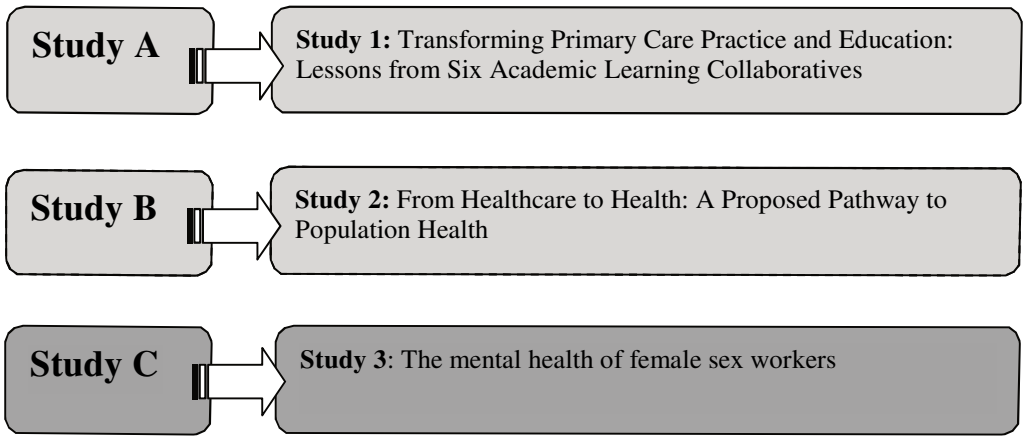

Figure 3: Overview of the studies in this thesis

All three studies belong to the field of health services research and address research questions on the successful implementation of new comprehensive care models or on the appropriate care for vulnerable groups, such as sex workers. Health services research is defined as "the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to healthcare, the quality and cost of healthcare, and ultimately our health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations (AcademyHealth, 2000). An important but rather neglected part of health services research is the category of "*implementation research*", which includes studies of how programs are implemented, translated, replicated and disseminated in real-world settings (Damschroder et al., 2013). Implementation research captures a range of contextual factors and practical experiences that are either overlooked or not captured by other research disciplines and which policy-makers may not have even considered. As there are often a lot of

well proven theoretical concepts that fail while being implemented in reality, implementation research is vital to understand context, to assess performance, to inform implementation, to integrate and scale-up successful approaches into health systems and to facilitate health systems transformation (Peters, Tran, & Adam, 2013).

Both studies A and B are typical examples of implementation research. Both aim to develop a common model for implementation by analyzing, summarizing and making available the experiences from experts, pioneers and early adapters and thus to contribute to successful health policy and practice transformation in healthcare. Study C focuses on a multi-stigmatized group by assessing their overall health and health needs as a prerequisite for designing the appropriate care services and overcoming barriers to healthcare. In the following, an overview on the three studies is given, complementing the detailed information on design, procedure and sample in the methods sections of chapters II, III, IV.

4.1 Study A: Transforming Primary Care Practice and Education. Lessons from Six Academic Learning Collaboratives.

Study A is a descriptive study conducted in 2013 - 2014 at Harvard Medical School (Boston, U.S) to analyze the use of Learning Collaboratives in Academic Health Centers. It is designed as a mixed method approach that combines qualitative semi-structured interviews with key informants of six Academic Health Collaboratives in the U.S., site visits and a quantitative survey. The study aims to develop a common model to implement PCMH within Academic Learning Collaboratives. The six Academic Health Collaboratives examined were the only existing Academic Collaboratives nationwide that were redesigning both primary care practice and trainee education in AHC practices and met all inclusion criteria. The Collaboratives were recruited through an official invitation letter to the collaborative leaders providing additional study information (e.g. aim, participants, duration of the study) and ensuring confidentiality.

The semi-structured interviews were conducted on the basis of an interview guide consisting of open-ended questions, but structured around specific categories that allow information to be gathered about how collaboratives were initiated, what enabled their implementation, and what made their work successful. This allowed information to be gathered in key areas, but was flexible enough to adapt and to include new insights, spontaneous consideration of topics not previously envisaged. It ultimately enabled questions to be addressed from various perspectives (Britten, 1995; Bungard, Holling, & Schultz-Gambard, 1996). The questions from the interview guide were developed based on the analysis of the key literature and research about primary care practice transformation with a focus on Patient Centered Medical Homes, practice facilitation and Learning Collaboratives (Bitton et al., 2010; Bodenheimer, Ghorob, Willard-Grace, & Grumbach, 2014; Clancy et al., 2013; Daniel et al., 2013; Institute for Healthcare Improvement, 2003; Safety Net Medical Home Initiative, n.d.; Wagner et al., 2012). To understand the academic teaching environment, literature on medical and inter-professional education and residency redesign was analyzed and current Academic Health Center Initiatives were studied (Bitton et al., 2014; Bitton, Pereira, Smith, Babbott, & Bowen, 2013; Bodenheimer, Chen, & Bennett, 2009; Green et al., 2007; Gupta et al., 2013; Institute for Healthcare Improvement, 2012; Wagner, 2010).

The quantitative questionnaire was developed based on relevant key figures to compare the Collaboratives, such as the organisation and structure of the Collaboratives (e.g. organizing body, requirements for participation, transformation strategy, funding) (see Table 2) and other characteristics (e.g. number of participating practices, average number of patients, number of residents, types of residencies) (see Table 1), elements of practice facilitation (see Table 3) and Residency Education Curricula (see Table 4).

The interview guide and questionnaire were discussed with experts from the Institute for Healthcare Improvement, Harvard Medical School and Qualis Health[3] and were adapted after their feedback.

Two pilot interviews were conducted to test the interview guides, as well as the technical equipment. The interviews were performed either by telephone or face-to-face and lasted approximately 30 minutes. The model developed for medical home transformation within teaching practices was based on common themes that emerged out of the interviews that explained how collaboratives were initiated, what enabled their implementation, and what made their work successful and sustainable over time.

4.2 Study B: From Healthcare to Health. A Proposed Pathway to Population Health

Study B was conducted in 2014 at Harvard Medical School, Boston. It was funded through the Commonwealth Fund, as part of the «Harkness Fellowship in Healthcare and Policy». It aims to understand the development of clinical-community partnerships in the U.S. Given the rapid evolution of population health initiatives in the field, it is designed as a qualitative study combining interviews with experts of opinion-leading organizations with four case studies of pioneering health systems in the U.S. instead of relying solely on a literature review. The semi-structured interview guide was developed based on a literature review and expert opinion analogous to Study A. The quantitative questionnaire was developed based on relevant key figures to compare the case studies, such as the vision, patient population, number of providers, visits per year, payer, funding, annual budget or community investment (for details see Table 6).

A pilot interview was conducted to test the interview guides as well as the technical equipment. The interviews were performed either by telephone or face-to-face and lasted approximately one hour. Through formal and informal contacts and a review of the literature,

[3] Qualis Health is one of the leading healthcare consulting organizations in the U.S., partnering with public and private sector clients to advance the quality, efficiency and value of healthcare: http://www.qualishealth.org/.

ten key experts with expertise in population health from opinion-leading organizations were identified (Agency for Healthcare Research and Quality, n.d.; Centers for Prevention and Disase Control, n.d; Duke University School of Medicine, 2017; Institute for Healthcare Improvement, 2017; Institute of Medicine, 2017; MacColl Center for Healthcare Innovation, 2017; National Institute for Children Healthcare Quality, 2017; Robert Wood Johnson Foundation, 2017; U.S. Department of Veterans Affairs, 2017) (see Table 5). Expertise included national reputation in the area of population health and experience in clinical-community partnerships, inter-sectoral collaboration and population management. All participants were recruited through an official invitation letter, providing additional study information and promising confidentiality. Each interview was recorded and fully transcribed. Based on the emerging themes from the expert interviews, a theoretical framework of building blocks was developed, which was validated by conducting brief case studies of four healthcare systems. These four health systems (Cambridge Health Alliance, n.d.; Department of Vermont Health Access, 2014; Kaiser Permanente, 2017; South Central Foundation, n.d.) were selected from a pool of candidates focusing on improving health by partnering with community services. These case studies were informed by review of material and documents combined with semi-structured interviews of leaders of these four organizations, as well as site visits.

4.3 Study C: The mental health of female sex workers

Study C was part of a larger research project of the “Klinik für Soziale Psychiatrie der Universität Zürich, Forschungsabteilung Public Mental Health” [Department of Social Psychiatry of the University of Zürich, Public Mental Health Research unit]. The research project was conducted between 2004 and 2007. It aims to understand the overall health, working and living conditions with a focus on mental health, health needs, as well as barriers to healthcare services of sex workers in the city of Zürich. The results were intended to be used to

design appropriate health care services and improve access to care. It was partly funded by the City of Zürich and the Swiss Federal Office of Public Health, interested in the HIV/AIDS-protection and sexual health, as well as the notoriety of facilitation and support services.

The explorative character of the study demanded a comprehensive, mixed method approach combining several data collection tools: a diagnostic interview to assess mental health status based on ICD-10 criteria and a face-to-face survey based on several structured questionnaires, a structured "sex work" questionnaire, including socio-demographical data, questions regarding working conditions (income, expenditure, number of working days and of customers per week), stigma and motivation for sex work; a questionnaire to measure the subjectively experienced burden associated with sex work; a short 13-item Antonovsky's sense of coherence questionnaire to measure the how the women manage stressful situations and stay well; a test for substance and alcohol abuse (Tweak-Test) and, as part of the mandate of the Swiss Federal Office of Public Health, a questionnaire to measure sexual health was included.

Prior to the main survey phase, a pre-test with 5 test subjects was carried out. The pretest aimed to test the clarity and usefulness of the items, as well as to attain a certain routine in the interviews. Based on the evaluation of the pre-test, various items were formulated differently and new items were added. As the implementation of the entire diagnostic interviews already lasted about 1.5 hours, it was decided to assess substance abuse disorders on the basis of the shorter questionnaires instead of the longer DIA-X version.

The sample included 193 sex workers from different working environments (studios, parlors, cabarets, brothels, escort-services, street). The female sex workers were contacted directly in different locations, namely outdoors, in studios, bars, cabarets, parlors, brothels and escort services. In addition, the respective information and facilitation services for sex workers and other vulnerable groups were asked for assistance in recruiting the participants of the study. Researchers also responded to the sex work newspaper or internet contact advertisements to contact women working in escort services.

The interviews (main survey phase) took place between 2004 - 2006. The overall interview lasted between 90-120 min. The interviews were conducted in German, Spanish, Portuguese or English. Informed written consent was necessary to participate in this study. The participants received a fixed sum of compensation for their expenses. Anonymity was guaranteed by using codes. Participation was voluntary and could be revoked at any time and questions could be skipped. Thus, the women retained a high degree of control over how far and how comprehensive they wanted to reply. In addition, the interviewees were given information about counseling and healthcare centers they could contact in case of needs. In addition, health workers from the crisis intervention center in Zürich were available the whole time. All data were collected and analyzed anonymously and in accordance with the Data Protection Act and treated with the utmost confidentiality.

In the following three chapters, the research articles addressing the main research questions outlined above, are presented.

5. Overall Discussion

The overall goal of this thesis is to address some of the limitations of health services research and to gain inputs for future health reforms in Switzerland by studying the implementation of integrated care models aimed at improving population health, such as the Patient Centered Medical Homes and clinical-community partnerships in the US. Furthermore, the thesis aims to fill the outlined gaps in the inclusion of vulnerable groups in healthcare studies to reduce disparities in healthcare. For this purpose, three studies were conducted, which are briefly described below and summarized in Table 12.

Study A investigates the use of the concept of Learning Collaboratives to implement PCMH in complex environments, such as Academic Health centers. This helped explain certain limitations in previous research, such as the lack of implementation of Patient Centered Medical Homes in AHCs and corresponding transformation of residents' training. The study set out to learn how AHC-based collaboratives transform both primary care practice and education. The goal was to understand their accomplishments, and how they were initiated and structured to identify a common framework for medical home transformation within teaching practices that might be replicated by other AHCs. The results were synthetized into a theoretical framework to describe a common approach to primary care transformation through learning collaboratives. This transformative framework illustrates three phases necessary for other systems that seek to collectively transform primary care practice and training: The first phase involved the practice leaders formulating a goal and vision in the context of a window of opportunity. The second phase involved the creation of an organizing body and structure, which included building institutional support and resources, selecting a model of transformation, and practice recruitment. The third phase was one of concrete transformation through in-person and virtual mechanisms, with constant use of data feedback for improvement, as well as practice

facilitation and coaching. Results have shown that Learning Collaboratives effectively support change, even within complex AHCs. Participants reported that the Collaboratives were successful in creating teams, as well as a « culture of trust », improvement, innovation, collaboration and shared learning between teams, as well as between trainees and teachers. The main changes in culture were described as teamwork where responsibility, accountability and leadership moved from a single individual to an interdisciplinary team.

Study B aims to understand how healthcare systems can develop successful collaborative clinical-community partnerships to address all determinants of health to improve population health. It aims to overcome the lack of knowledge in research by developing a framework for establishing clinical -community partnerships based on the current practical experience in the field. There are six key building blocks that are essential for successful partnerships to address various determinants of health: 1) effectively organized primary care; 2) connectors; 3) integrators; 4) a shared roadmap; 5) aligned funding; and 6) supporting infrastructure. The development of partnerships can be described as an incremental process of integration, based on the health needs and resources of the community.

Study C is an example of a comprehensive analysis of health needs as a necessary condition for appropriate care (such as clinical-community partnerships). As a multiple stigmatized group, female sex workers are disadvantaged in many ways and are considered as an underserved group in health and social care. Although the health of sexworkers is seen as a major public health threat worldwide, their needs are not well known and the focus in research is usually on sexual diseases. This view is far too limited, as female sex workers are an important public health group (including migrants or drug addicts), whose experience, working and living conditions require specific healthcare and psychosocial support. The aim of study C is therefore to examine their overall health, including their mental health status, working conditions, coping strategies, as well as their access to health and social services. Results have shown significantly higher rates of mental disorders compared with the general population that

differed between sex workers depending on nationality and sex work setting. They are also significantly more often exposed to violence, what correlates with mental disorders. The study also showed that sex workers are a heterogeneous group with different health needs. It seems that women coming from abroad are more vulnerable for negative effects of sex work and thus for subsequent health problems, because they lack important resources, such as language skills, reliable social network and knowledge about healthcare and welfare services and the legal system. Ultimately, the study showed that sex workers still have inadequate access to healthcare and that services do not provide appropriate support, such as helping to quit sex work.

Table 1: *Overview on major results of the studies*

Name	Study / Chapter	Research aims	Results	Conclusions
AHC Learning Collabora-tives	A/II	To develop a conceptual framework for medical home transformation through learning Collabroatives within Academic Health Centers	The transformation framework includes three phases: (1) building the intent; (2) creating a collaborative structure and (3) concrete transformation of practices. Main changes included to create interprofessional leadership, the commitment of trainees and patients as change agents and to redesign the curricula.	Findings emphasize the importance of a "burning platform" to create a need for change; the importance of a supportive environment with change facilitation that creates flexible accountability, as well as the power of a Learning Community as a driver for change based on constant and transparent data measurement.
Clinical-community partnerships	B/III	To develop a conceptual framework for successful clinical-community-partnerships	The Transformation framework is based on six building blocks: (1) organized primary care; (2) connectors; (3) integrators; (4) a shared roadmap; (5) aligned funding; and (6) supporting infrastructure. The process can be described as an incremental process of integration, based on the health needs and resources of the community.	Findings emphasize the importance of starting these partnerships based on a shared area of concern and over time to expand the coalition by integrating various resources through a virtuous cycle of collaboration. Findings emphasize the importance of effective primary care as a necessary basis for any kind of clinical-community partnerships. In addition, the incentives to reorient the system toward population health and the establishment of a supportive infrastructure that facilitates sustainable partnerships and enables a learning Community, such as information flow and data measurement, are key.
Mental health of sex workers	C/IV	To analyze and describe the mental health status and health needs of different groups of female sex workers in Zürich	Results have shown significantly higher rates of mental disorders and other health needs, as well as higher exposure to violence, compared with the general population. These rates vary depending on different factors, such as the perceived burden of work, experienced violence and migration background.	Findings have contributed to a better understanding of the reality of sex workers and have revealed important aspects that influence health, such as social isolation and perceived high burden of work. Findings emphasize the importance of assessing health in a comprehensive way, including social determinants of health, such as working conditions and mental health, to design appropriate care and contribute to equity in healthcare.

In the following sections, the major results from the investigated areas are highlighted and discussed within a broader health system and change perspective, complementing the discussion sections of the individual chapters. Subsequently, methodological aspects are addressed and the strengths and limitations of the studies are presented. Implications for future research and practice are then described.

5.1 Discussion of the study results

The results of all three studies contribute to closing different gaps in health services research by focusing on various aspects essential for the design of a health system capable of improving population health. *Study A* focuses on an *organizational perspective* and addresses the lack of knowledge about implementation of Patient Centered Medical Homes in Academic Health Centers by developing a conceptual framework for PMCH transformation within teaching practices. *Study B* focuses on a *system perspective* and develops a conceptual framework to facilitate effective clinical-community partnerships as an important way of addressing the various determinants of health. *Study C* finally analyzes on an *individual level* the overall health of a highly neglected vulnerable group, including social determinants, such as working and living conditions and therefore provides the necessary knowledge to develop appropriate health interventions and to improve equity of care. It can be further used as a concrete practical example to show the importance of clinical-community partnerships, as sex workers often need comprehensive care that goes beyond medical care, such as security or employment support.

All three studies confirm the importance of a *comprehensive health perspective* (described already by Hacker & Walker, 2013; Hildebrandt et al., 2010; Kindig & Stoddart, 2003; Stine, Chokshi, & Gourevitch, 2013; Whitehead, 1992), *intersectoral collaboration* (mentioned by Cramm & Nieboer, 2012; Institute of Medicine, 2012; Tipirneni et al., 2015; Valentijn et al., 2013) and most importantly *strong and organized primary care* (highlighted by

Bodenheimer, Grumbach, et al., 2009; Starfield et al., 2005; Valentijn et al., 2013) as the backbone of an effective health system to improve population health (also described in chapter 2.3). The findings of study B highlight that important principles of primary care (Institute of Medicine, 1994), such as comprehensive, continuous, coordinated care provided by a multidisciplinary team, need to be established as a first step to build the necessary capacity and culture to collaborate with community services and build clinical-community partnerships in the next step. The findings of study A confirm the importance of learning these principles as early as possible in medical training, as this allows the necessary competences and improvement skills to be gathered to collaborate and adapt continuously to the needs of the patients in future (suggested by Fraher et al., 2013; Global Forum on Innovation in Health Professional Education & Institute of Medicine, 2015; Green et al., 2007; Plochg, Klazinga, & Starfield, 2009). It is assumed that such a change of training might even catalyze the system-wide implementation of new models. These results are therefore of the utmost importance in developing and prioritizing necessary health policy measures (described in more detail in chapter 5.4.1).

From a change perspective, several findings need to be highlighted. Both Study A and Study B show that new care models seem to be the result of a slowly evolving process of learning. Change often starts with motivated leaders based on a shared goal that allows collaboration to be tested and leads to trust and a learning system expanding the change topics and participants over time through a virtuous cycle of collaboration. This confirms results of studies about the effect of "learning collaboratives" in a non-academic environment (Gittell et al., 2010; Nadeem et al., 2013). This constant process of collaboration is demonstrated in study A on the collaborative level as well as in study B on the clinical-community level.

Interesting from a change perspective is the finding that collaborative learning seems not only to be a method but also a result. Based on the research results from this thesis it is clearly apparent that transformation from an individual, fragmented system to a collaborative system also requires collaborative change methods, such as learning collaboratives to facilitate change

and to develop collaboration. The concept of learning collaboratives has therefore proven to be promising in many ways: it can be used as a simple and structured method to implement new processes and care concepts and, at the same time, it enables collaboration to be learned and practiced as a side effect. Important competences and capacities are built up over time, which are a prerequisite for integrative care models. This result confirms the suggestions of several research papers (MacDonald-Wilson & Nemec, 2015; Nadeem et al., 2013; Schouten et al., 2008; Shaw, Chase, Howard, Nutting, & Crabtree, 2012; Vretveit et al., 2002; Wilson et al., 2003). Another important driver of a learning community shown in Study A were the multiprofessional teams that provided different ways of thinking and were used as change agents. The collaboratives examined in Study A further included students in their change teams to transform the medical training in AHC from a traditional "hierarchical" teaching approach to a collaborative "teach and learn" approach. This was considered an important factor for success and is also described in recent studies (Bitton et al., 2014; Clay et al., 2013; Gupta et al., 2013).

Accordingly, in the evaluation of such concepts from a change perspective, it is not the patient outcomes that matter primarily, but the indicators of organizational learning and cultural change processes, such as building trust, creating a learning culture, practicing teamwork and other collaborative outcomes that were confirmed as positive results in Study A. Learning Collaboratives can ultimately act as a driver for change that allows continuous implementation and seems to effectively sustain change, even within complex AHCs. It is fair to suggest that such a learning community enables and sustains change by building local capacity and ownership and by creating a culture of continuous learning and quality improvement (Miller et al., 2010). Especially this kind of learning culture seems to be an important success factor in developing and expanding clinical-community partnerships as also shown in Study B.

Another important result from a change perspective is that these bottom-up approaches seems to generate more acceptance than top-down approaches and therefore increase the

chances of sustainable implementation and continuity of projects, as they are 'owned' locally. This was described in Study A as the main strength of Learning Collaboratives and fits with the motivational and social constructivism theories described in Chapter 2.5.2 on which the studied method is based. This phenomenon was recently also described as a conclusion in a Swiss study (Trageser, Vettori, Fliedner, & Iten, 2014, p. 16). Given the complexity of reform processes in the health system (also described by Sturmberg, O'Halloran, & Martin, 2012), it must therefore be assumed that the traditional way of implementing new care concepts from a top-down perspective alone will not work, but instead needs to encourage and support those individuals who are willing to connect, collaborate with others and learn together. Both studies confirmed that it works best when individuals and teams have a common purpose or need (burning platform) to do so, such as dealing with a shared problem. The results of both studies show that change is driven by motivated practice leaders (Study A) or innovative healthcare organizations on a local level (Study B), based on shared health needs of a community or a specific group. The focus on health needs as a point of reference seems to be important, as it unites the different players and allows several structural or cultural barriers to be overcome.

At the same time, the results of both Studies A and B highlight the need for top-down support to align those bottom-up processes with top-down approaches, to measure and evaluate the various initiatives, to scale them up and achieve system-wide transformation. This top-down support can range from concrete technical assistance (e.g. project management), to support in the measurement of changes and outcomes, to financial (e.g. new models of payment) and political incentives (e.g. laws, accreditation criteria). With regard to such supporting measures, Study A shows the necessity of creating a collaborative structure with clear goals, defined project organization and time frame (e.g. meeting structure), resources (e.g. logistics, technical assistance, project management, funding) and the use of a clearly defined care model (e.g. PCMH) as an organizing framework. Informants of Study A described the necessity of setting measurable goals and learning the Plan-Do-Study-Act method (Agency for Healthcare

Research and Quality, 2013) (described in chapter 2.5.2) to test and measure changes as key to implement necessary changes. They further highlighted the importance of creating a burning platform to expand the collaborative aspect and include more players to achieve system-wide transformation. At the same time, the top-down requirements and obligations for participation needed to be flexible enough to adapt to the different settings, but also sufficiently rigid to demand accountability (described in Study A as the "concept of flexible accountability and creative discomfort"). Study B describes similar facilitating building blocks, such as the importance of an integrator organization to facilitate the integration of resources and services and demand accountability, as well as a supportive infrastructure and culture to strengthen a learning community, shared information, data exchange and capacity building. An important factor for success described in both studies was the continuous and transparent measurement of processes and outcomes. It was described that the obligation to make those outcomes transparent was essential to drive change, also by evoking positive competition. A key factor of success described was ultimately the importance of financial incentives provided by additional funding on a governmental level, new regulations or new payment models, such as bundled payments, global budgets etc. All these aspects, described and summarized in the six building blocks, are important learnings to design health policy measures that facilitate the necessary bottom-up change (see chapter 5.4.1) and confirm important facilitation elements highlighted in other studies, (e.g. Baskerville et al., 2012; Harvey et al., 2002; Kilo, 1998; Knox, 2011; Nembhard, 2009).

The results of Study C confirm the expected higher rates of mental disorders and various health needs of female sex workers compared with the general population in Zürich, as previously suggested in research (Bodkin et al., 2015; Cwikel et al., 2003; Farley et al., 2004; Javidi & Yadollahie, 2012). Findings have shown a high burden of sexwork related issues, such as social isolation, stigmatization and more frequent exposure to violence. These negative consequences vary depending on the setting (e.g. brothel, street), reasons for sex work (e.g.

voluntary, financial pressure) or other variables, such as nationality. For example, women with a foreign background seem to be more vulnerable for negative effects of sex work and subsequent health problems. The reason could be because of the lack of important resources, such as a reliable social network, knowledge about welfare services or language skills. Ultimately, it can be surmised that sex workers, depending their background and reason to execute sex work (e.g. drug use), have unequal access to healthcare and that services provide inappropriate support. The overall results therefore provide an example for several inequalities in healthcare and highlight the importance of developing appropriate care adapted to the heterogeneous health needs of the different subgroups in a next step.

5.2 Discussion of methodological aspects

In the following section, the research approach and the methodological aspects of the three studies are addressed. As Study A and Study B differ significantly in their research design from Study C, they are discussed separately. An overview over the methodological approach of all three studies is given in Table 13.

5.2.1 Methodological approach of Studies A & B

As described in chapter 4, Studies A and B used a mixed method design, based on a qualitative interview and an additional quantitative questionnaire. Qualitative approaches can be considered as the most suitable for this kind of research project dealing with unexplored areas (Flick, 1995; Patton, 1999), as they allows new theory and concepts to be generated (Bradley, Curry, & Devers, 2007). On the other hand, qualitative methods differ in their research methods from the traditional quantitative research paradigm and have therefore been less accepted and understood in the scientific community. To be accepted, qualitative research therefore needs to fulfill very rigorous guidelines to allow credibility and objectivity of research (Tong, Sainsbury,

& Craig, 2007), such as the 32-item checklist of consolidated criteria for reporting qualitative research (COREQ) (Tong et al., 2007). The items on this checklist can be categorized in three groups (Patton, 1999): (1) *rigorous techniques and methods* for gathering high-quality data with attention to issues of *validity and reliability*; (2) *research team & reflexivity* that focus on the *credibility* of the researcher, which is dependent on training and experience and (3) the *study design & methods*, which is reflected by a fundamental appreciation of naturalistic inquiry, qualitative methods, inductive analysis, purposeful sampling, and holistic thinking. Both studies were based on this checklist and attempted to fulfill the different requirements. An overview of the degree to which the methodological approach of Studies A and B met these standards is shown in Table 13 and discussed along these three categories in detail below.

Rigorous methods for data collection & analysis: Studies A and B used several techniques to ensure reliability and validity. Different measures were taken to ensure *retest and interrater* ***reliability***, such as independent coding of transcripts and the development and refinement of the codebook by additional researchers (Bradley et al., 2007; Mays & Pope, 1995; Patton, 1999). Furthermore, a qualitative software NVivo was used to allow systematic analysis and traceability. Complete study information was given and anonymity and confidentiality pledged (see details Chapter 4.1/4.2). *Influences of the researcher's personal bias* can be expected to be minimal in both studies, as the research topic was new and without any link to the previous work of the author of this thesis. Nevertheless, the data was recoded by two other researchers to minimize the influences of researcher's personal bias. As the selected experts were known to some of the co-researchers, the study might include a selection bias to some extent.

To ensure *validity*, both studies partly used the (1) concept of *triangulation*, (2) *respondent validation* and (3) the *method of constant comparison*. To complement qualitative findings with various sources of information (*triangulation*), additional quantitative data was gathered (Flick., 2008; Harris & Brown, 2010; Patton, 1999). In study A, the interviews were

combined with a document analysis and a structured quantitative questionnaire and Study B combined them with a document analysis and brief case studies. Furthermore, site visits were conducted and two Collaborative Learning Sessions were arranged to gain impressions about the setting and context and to allow a better understanding of the collected data throughout personal experiences (method of informal observation). The questionnaires and case studies were also used to ensure that the data is rich, robust and comprehensive. The use of the *method of constant comparison*, which means that one interview (piece of data) is compared with another interview (previous data) and not considered on its own, allowed these data to be viewed as a whole. This enabled identification of emerging themes. This process of constant comparison was facilitated by using NVivo software. Interviewees were invited to provide feedback on the researchers' interpretation of their responses to ensure *respondent validation* and to avoid inconsistencies, to challenge the developed assumptions and to provide an opportunity to re-analyze the data. (C. Anderson, 2010).

Credibility of the research teams: The research teams for both studies had different skills as required, based on their professional and educational background. As a psychologist, the author of this thesis was trained in different interview techniques and had experience in qualitative methods, such as focus groups. Two other reviewers and co-researchers were medical doctors and highly renowned professors at Harvard Medical School with enormous research experience. Professional advice was given by the head of the research team at Harvard Medical School, Institute for Primary Care and selected experts from the Commonwealth Fund.

Study design: Both studies used a semi-structured *interview guide*. This interview guide had a loose structure, consisting of open-ended questions that defined the area to be explored (Britten, 1995). This allowed information to be gathered in specific desired areas, but was flexible enough to adapt to new ideas and spontaneous consideration of topics not previously envisaged. It allowed divergence during the interview to pursue an idea in more detail and address questions from various perspectives (Bungard et al., 1996).

According to the requirements of qualitative research, the interview *sample* of both studies was selected through *systematic, non-probabilistic sampling*. In contrast to quantitative research, its purpose was not to establish a representative sample drawn from a population, but rather to identify specific groups of people who possess the knowledge relevant to the phenomena under investigation. Following this method, the informants were selected depending on whether they have enough information to enable the exploration of a particular aspect relevant to the research. This approach allowed different types of informants to be included and key informants with access to important sources of knowledge to be selected as required in qualitative research (Mays & Pope, 1995).

Both studies attempted - to a limited extent - to apply the method of *"theoretical sampling"*, in which the objective of developing theory or explanation guides the process of data collection. Both studies started with an initial selection of 6 informants. Once these data were analyzed, refinements were made to the codebook and to the "converging themes". At this point, it was decided to conduct more interviews. Usually this relation between sampling and explanation is an iterative process guided by the *principle of data saturation*, the point at which no more data needs to be collected and the theory appears to be robust (Flick, 1995; Mays & Pope, 1995). This point of data saturation could not be satisfactorily met in either study. Study A, because of the restricted sample of existing Learning Collaboratives and Study B given the limited number of experts in this new field of research and time restrictions. Applying rigorous techniques in study B was particularly difficult due to the novelty of the topic in the health sector and the lack of theoretical and evaluated models, but mainly because of the heterogeneity of possible clinical-community networks in healthcare. All this made the selection of interviewees a specific challenge. The attempt was made to overcome these limitations in Study B by adapting the methodical approach and by validating the theoretical framework developed based on the expert interviews through four brief case studies. Nevertheless, Study B has to be considered methodologically inconclusive. Even though Study B attained some of the minimum

sample size recommendations in literature ranging from 6 to 50 (Mason, 2010) and the literature suggests that expertise in the chosen topic can reduce the number of participants needed (Jette, Grover, & Keck, 2003; Mason, 2010), it is questionable whether, given the variation in the field, the sample size allows robust results. The resulting theory may therefore be unbalanced and incomplete and need to be backed up with additional research. Additional difficulties lie in the unclear definition and inability to measure concepts. The concept of population health is rather extensive and includes the entire spectrum of health system interventions from prevention to diagnosis, treatment and aftercare. Such a broad definition is difficult to guide research (Kindig, 2007). In addition, the concept of clinical-community partnerships in this thesis remains largely undefined. When is cooperation considered as a clinical-community partnership? As shown in the rainbow model in Chapter 2.4.1 and confirmed in the study, there exist different types of collaboration depending on the community assets and health needs of patients or the degree of integration. Given the various national, regional and local contextual factors, different players and determinants of health, it is difficult to draw robust conclusions about successful factors of emerging clinical-community partnerships and in particular about a possible transfer of results to the Swiss context.

In summary (also see Table 13), both studies A and B were guided by qualitative standards, but could not fulfill all requirements. Because of their rather unique implementation research approach, they can only be partially compared with other qualitative studies. Nevertheless, the two studies allowed several practical and implementation-oriented inputs to be gathered in a research field where this kind of implementation research is still lacking, but is of utmost importance for guiding health policy actions.

5.2.2 Methodological approach of Study C

As described in chapter 4.1.3, the explorative character of the study demanded a comprehensive, mixed method approach that combined several data collection tools. To allow *credibility* of the research, the interviews were based on highly standardized and validated questionnaires. Mental Health was assessed with the World Health Organization (WHO) Composite International Diagnostic Interview (M-CIDI 2.1). As this is a standardized computerized diagnostic interview, testing and evaluation of the data is performed using the computer program. Diagnostic errors could therefore be avoided and mental health diagnosis were ensured in accordance with the diagnostic and statistical manual (DSM)-IV criteria (Wittchen et al., 1998). This allowed *reliability* and *validity* of diagnoses, as well as comparison of the results with other studies based on an international taxonomy. This also applies for the 13-item Antonovsky's sense of coherence scale. The German scale used is a validated and authorized version of Noack et al. (1991) (Singer & Brähler, 2014). Different studies and systematic reviews have confirmed this SOC scale as a highly valid, reliable and cross-culturally applicable instrument to measure how people manage stressful situations and stay well (Eriksson & Lindstrom, 2005). The TWEAK test (Chan, Pristach, Welte, & Russell, 1993)is a validated test for assessing alcohol abuse according to the ICD-10 criteria that was developed specifically to assess alcohol dependence disorders in women and validated in samples with women. The TWEAK test has been conducted in different settings and cultures and has been found to perform reasonably well (Moraes, Viellas, & Reichenheim, 2005). Compared to similar tests (e.g. AUDIT, CAGE, RAPS4), the TWEAK test has shown high levels of sensitivity and specificity. It has shown a high "face validity" (Chan et al., 1993; Cherpitel, 1995), but less concurrent validity than other tests. Taking into account that reliability coefficients depend upon the number of items included and the TWEAK test is very short, reliabilities were satisfactory (Cremonte, Ledesma, Cherpitel, & Borges, 2010). The only non-

validated questionnaire was the sex work questionnaire. However, the questionnaire was based on as many "validated" questions from existing questionnaires as possible. For example, the socio-demographical data was taken from other applied questionnaires in the "research unit", questions regarding working conditions (e.g. income, expenditure, number of working days and customers per week), were used from another questionnaire used in Germany (Krüger, 2001). To ensure the maximum implementing objectivity and to reduce the subjective influence of the interviewer on the interviewee, the questionnaire used standardized questions and response options. Participants had to respond to prompts by selecting from predetermined answers (e.g., Likert scales and multiple choice responses) (Harris & Brown, 2010). To gather new insights, thoughts and additional information, the standardized questions were combined with a small set of open-ended questions. Comments were recorded handwritten as an additional source of information to understand better this lesser known research topic even though this is known to reduce validity and reliability. The answers to these open questions were analyzed through qualitative methods and using MaxQda. More information about the qualitative approach is described in Table 13).

Study C targeted a specific but heterogeneous group of female sex workers in Zürich. The sample size of 193 sex workers is very large compared to previous studies and can be considered as large enough to allow solid conclusions on the factors examined, such as mental health status. As the real population is unknown and estimated numbers are based on data from the police, the question of the representative section of the actual population is difficult to estimate.

To obtain a representative sample and a good mixture in terms of socio-demographic variables and to reduce distortions (e.g. self-selection bias), the sample was recruited in many different ways: directly and personally at the different working locations, via listings in newspapers, distributing flyers and via social and health services. However, a selection bias cannot be excluded. Female sex workers are difficult to access and recruitment is therefore challenging. Many salons and brothels didn't want to attract attention of non-clients and were

wary of police action. Some women feared their pimp and therefore did not want to participate. Additional language difficulties and sometimes also lack of intellectual capacity may have led to distortions in the sample. It can be assumed that "illegal or forced prostitutes" were underrepresented.

This selection bias was counteracted through different approaches. Recruiting via counselling services implies the risk of encountering women who have a specific problem. This was enhanced by recruited women who worked self-determined in their own salons. Women from other cultures who are otherwise difficult to access could be recruited through migration-specific approaches (for example, through contacts in specific restaurants). The interviews were further conducted in several languages (e.g. spanish, english, portuguese). These different approaches might lead to the assumption that possible distortions could to some degree be reduced and allow an acceptable description of this heterogeneous population.

In summary, the methodological approach of Study C can be described as mainly robust and adequate. The methodological approach included several standardized, validated and reliable measurement instruments. It was a comprehensive mix ranging from standardized diagnostic interview and structured questionnaires to open questions. This contributed to the novelty and exploration of the topic and followed rigorous research standards. On the one hand, the open questions allowed new insights and knowledge to be generated. On the other hand, mental health was assessed according to the diagnostic criteria, which ensures comparability with other studies. However, the study faces several limitations, mainly due to the heterogeneous, opaque and semi-illegal area. Despite the large sample and the inclusion of different segments, the study was conducted in a gray area and ultimately it must be assumed that representativeness is limited and the sample is selective and the results therefore need be treated with caution.

Table 2: *Comparison of the three studies along the 32-items checklist for reporting qualitative studies (COREQ)*

	Study A: AHC	**Study B: Population Health**	**Study D: Sex workers**
Domain 1: Research team and reflexivity			
Interviewer/facilitator: Which author/s conducted the interview?	Ursula Koch (main author)	Ursula Koch (main author)	Ursula Koch (project leader), Anne Hess, Marion Altweg (co-Interviewer)
Credentials: What were the researcher's credentials?	Master of Science, Master of Organizational Development and further education and qualifications (see CV)	Master of Science, Master of Organizational Development and further education and qualifications (see CV)	Psychology students
Occupation: What was their occupation at the time of the study?	Harkness Fellow in Health Policy and Healthcare Practice at Harvard University. Head of Department of the national prevention programs (Federal Office of Public Health)	Harkness Fellow in Health Policy and Healthcare Practice at Harvard University. Head of Department of the national prevention programs (Federal Office of Public Health)	Research fellow at the Psychiatric University hospital in Zürich, research unit Public Mental Health.
Gender: Was the researcher male or female?	Female	Female	Female
Experience: What experience or training did the researcher have?	Training at University of Zürich in qualitative and quantitative methods and statistics; training at the Institute for Primary Care, Harvard Medical School in conducting and analyzing interviews; NVivo course from the NVivo company in the use of NVivo Software Guidance and mentorship from Prof. Russell Phillips and Bruce Landon	Training at University of Zürich in qualitative and quantitative methods and statistics; training at the Institute for Primary Care, Harvard Medical School in conducting and analyzing interviews; NVivo course from the NVivo company in the use of NVivo Software Guidance and mentorship from Prof. Russell Phillips and Bruce Landon	Training at University of Zürich in qualitative and quantitative methods and statistics; Training in MaxQDa for analyzing qualitative data through the MaxQDa Company; Training in standardized diagnostic interview through same trainers. Further experience in development of questionnaires in other research projects and guidance from Prof. Rössler
Relationship with participants: Was a relationship established prior to study commencement?	First informal meeting at a workshop at the PCPCC Fall Conference in Maryland, where the study idea was presented and discussed with some known Collaborative Leaders of Academic Health Collaboratives.	No. The other co-authors were however part of a comprehensive network and knew some of the interviewed key experts well.	No

	Study A: AHC	Study B: Population Health	Study D: Sex workers
Participant knowledge of the interviewer: What did the participants know about the researcher, e.g. personal goals, reasons for doing the research?	Study information about goals, reasons for doing research and some information about the researcher was sent prior to the interview and repeated orally before conducting the interview.	Study information about goals, reasons for doing research and some information about the researcher was sent prior to the interview and repeated orally before conducting the interview.	Study information about goals, reasons for doing research and some information about the researcher was sent prior to the interview and repeated orally before conducting the interview. Study information was translated into several languages.
Interviewer characteristics: What characteristics were reported about the interviewer/facilitator, e.g. bias, assumptions, reasons and interests in the research topic	Swiss background. Working at the Federal office of Public Health. At the time of the study: Harkness Fellow in Healthcare Policy and practice, based at Harvard Medical School. Interest mainly in PCMH Implementation, inter-professional education and Learning Collaboratives as a change method from a health policy perspective.	Swiss background. Working at the Federal office of Public Health and responsible for strategies to tackle chronic diseases. Therefore, a special interest in population health approaches to gain insights to support transformation from a health policy level. At the time of the study: Harkness Fellow in Healthcare Policy and Practice, based at Harvard Medical School.	Information about workplace and professional as well as cultural background. Interest in the research topic: given the many sex workers in Zürich and their stigmatized position, it is important to know their health needs, life and working conditions to be able to design the right services and address possible health access barriers.
Domain 2: study design			
Methodological orientation and theory: What methodological orientation was stated to underpin the study, e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis?	Grounded theory. Structured interviews combined with a questionnaire, document analysis and site visits.	Grounded theory. Structured interviews combined with brief case studies, document analysis and site visits.	Mixed method approach combining a face-to-face diagnostic interview with an oral, standardized and structured survey. The survey combined closed and open questions. The open questions were intended to gather more in-depth insights on thoughts and action.
Sampling: How were participants selected, e.g. purposive, convenience, consecutive, snowball?	Consecutive sampling. As there are only a few Academic Health Collaboratives, we included all available collaboratives in the sample that meet the selection criteria.	Purposive or judgmental sampling. The sample of the opinion leaders and the case studies was chosen based on defined selection criteria and expert recommendation.	Mix between quota and convenience sampling: a) min. number of sex workers per type of working environment (street, salon, brothels) and accessibility and willingness to participate.

	Study A: AHC	Study B: Population Health	Study D: Sex workers
Method of approach: How were participants approached e.g. face-to-face, telephone, mail, e-mail?	Recruiting: via mail and telephone Interview: face-to-face and telephone	Recruiting: via mail and telephone Interview: face-to-face and telephone	Recruiting: diverse methods that integrate face-to-face contact, flyers, contact persons (health, social and other supporting services) and workplaces (Employers) Interviews/Survey: face-to-face
Sample size How many participants were in the study?	20	14	193
Non-participation. How many people refused to participate or dropped out? Reasons?	None	2	Cannot be assessed
Setting: Where was the data collected? e.g. home, clinic, workplace	Face-to-face: at the workplace Telephone: at the author's workplace	Face-to-face: at the workplace Telephone: at the author's workplace (location of the interviewed persons varied)	At their workplace, at home or any other safe and quiet environment.
Presence of non-participants: Was anyone else present besides the participants and researchers?	No (comment: In the first six interviews the interviewer were accompanied by another researcher taking notes)	No.	No. Anonymity was very important.
Description of sample: What are the important characteristics of the sample e.g. demographic data, date?	Participants are "learning collaboratives". They have a collaborative structure and have built a learning community: (1) They focus on the implementation of a medical home across multiple primary care practices and the redesign of the training of residents. (2) Their collaborative receives support (practice facilitation) for transformation (3) Characteristics of the collaboratives - see Table 1.	Opinion leading organizations with an overall expertise in population health (see table 6) Case Studies: health systems focusing on improving health and partnering with community and public health services to address various determinants of health. They varied regarding different characteristics (see Table 6).	Female sex workers working on min. 1 day/week in different workplaces (street, brothels, salon) in Zürich (see Table 8).

	Study A: AHC	Study B: Population Health	Study D: Sex workers
Data collection			
Interview guide: Were questions, prompts, guides provided by the authors? Was it pilot tested?	There was an interview guide with specific interview domains and prompts provided by the authors. The interview was pilot tested with 2 interviewees.	There was an interview guide with specific interview domains provided by the authors. The interview was pilot tested with 1 interviewee.	The survey was pilot tested with a sample of 20 interviewees.
Repeat interviews: Were repeat interviews carried out? If yes, how many?	No	No	No
Audio/visual recording: Did the research use audio or visual recording to collect the data?	All interviews were fully recorded and transcribed	All interviews were fully recorded and transcribed	No audio and visual recording
Field notes: Were field notes made during and/or after the interview or focus group?	Yes, the interview guide was used to make field notes	Yes, the interview guide was used to make field notes	Yes. The survey included open questions and a commentary field. In addition, field notes were taken in case of important information.
Duration: What was the duration of the interviews or focus group?	Between: 30 min - 90 min.	On average: 1-2 hours	On average: 2 hours
Data saturation: Was data saturation discussed?	After 20 interviews, data saturation can be expected.	The concept of data saturation was not applied. Instead it was decided to focus on 4 case studies to validate the developed framework	Yes.
Transcripts returned: Were transcripts returned to participants for comment and/or correction?	No, but the results were discussed. Tables were returned for comment and correction.	No, but the results were discussed. Tables were returned for comment and correction.	No.
Domain 3: analysis and findings			
Data analysis			
Number of data coders: How many data coders coded the data?	3 coders. 1 person coded and 2 coders checked the codes.	1 person coded, 1 person checked the codes	1 person coded, 1 person controlled the codes

	Study A: AHC	Study B: Population Health	Study D: Sex workers
Description of the coding tree: Did authors provide a description of the coding tree?	Yes. There was a codebook developed and then copied to the NVivo.	No	Open questions were analyzed in a more enumerative fashion.
Derivation of themes: Were themes identified in advance or derived from the data?	The interview guide was developed based on literature review and structured by themes. This allowed a semi-structured data gathering and to ask about important domains. Through a qualitative analysis based on the software NVivo, themes were derived from the analyzed data. Those derived themes were integrated in a "theoretical model".	Similar procedure as Study A. The interview guide was developed based on literature review and structured by themes. The resulting building blocks were a result and derivate from the analyzed data.	The open questions in the survey allowed new knowledge to be generated in a specific domain of interest. The analysis included the collection and quantitative determination of the most frequent responses. The themes in the open questions were therefore derived from the data.
Software: What software, if applicable, was used to manage the data?	NVivo	NVivo	MaxQDa
Participant checking: Did participants provide feedback on the findings?	Yes	Yes	No
Reporting			
Quotations presented: Were participant quotations presented to illustrate the themes / findings?	Yes	No	No
Data and findings consistent: Was there consistency between the data presented and the findings?	Yes	Yes	Yes
Clarity of major themes: Were major themes clearly presented in the findings?	Yes. The goal of the study was to build a "Transformation model" based on the main findings.	Yes. The goal of the study was to build "key building blocks" (pathway) based on the main findings.	Yes. The analysis focused on the quantitative determination of the most frequent responses. Major themes were therefore those that were mentioned several times.

	Study A: AHC	Study B: Population Health	Study D: Sex workers
Clarity of minor themes: Is there a description of diverse cases or discussion of minor themes?	The minor themes were discussed, but for the peer-reviewed publication it was only focused on "overall" key factors to develop a "transformation model"	There were a lot of topics and information about population health. To be able to develop key building blocks, it was only focused on the shared issues.	No

5.3 Strengths and limitations

In this section, strengths and subsequently limitations of the three studies are presented that go beyond the methodological issues outlined above or discussed in Chapter II, III, IV and XX.

The greatest strength of the studies presented lies in their practical implementation approach and therefore important contribution to the field of health services and implementation research, as well as to current healthcare and health policy questions.

For several years now, reform efforts in Switzerland have not been successful. One of the reasons lies in the lack of this kind of health services research due to the disregard for the practical reality in the field (Rosemann, 2012; SAMW, 2014). There is often consensus on a theoretical level about the goals new care models need to fulfill. However, implementation of new care concepts is not achieved by writing the concept. Instead, these kinds of models are implemented in a reality which is influenced by many determinants. Furthermore, the health system is a complex system and implementation of comprehensive health models is complex and often does not follow rational patterns (Plsek & Greenhalgh, 2001).

As rigorous research needs to focus on clear, measurable and testable research questions or causal relationships, to be well accepted, this type of research is missing and complex processes are poorly understood. All three studies contributed to filling gaps in implementation research by studying three different aspects of healthcare system transformation. Studies A and B aim at understanding the relevant change aspects and success factors for the implementation of new care models in the field. Study C provides knowledge about the health and access to

healthcare of a neglected, vulnerable group. All studies provide important insights into new fields of research, as well as into current healthcare questions. They also provide important practical information for policy and practice leaders to support such transformation processes and to design appropriate interventions.

Another strength of both Study A and sSudy B is their attempt to conceptualize and visualize the results into a simple theoretical framework (see *figures 4 and 5*) that allow guidance for imitation and testing in other settings. As the studies intended to learn from the U.S. to gain insights for Switzerland, it was deliberately decided not to describe the qualitative results in a simple text using quotes as is usually the case in qualitative papers, but instead to synthetize them into a most application-oriented model. The visualized model of Study A might provide a conceptual framework for other players in the field aimed at building an academic learning collaborative and the "building blocks" in Study B may be important to take into account when planning and implementing clinical-community partnerships. While this approach to visualize the findings by a testable model is a rather novel approach in qualitative research, it was highly appreciated by the participants in both studies, as it enabled them to follow a strategy for replication.

Another strength of the studies is the integration of key experts, both in the research team, as well as in the interviewed sample. As good «implementation research» is collaborative research, it has been proven as useful when implementers play a part in the identification, design and execution of the research undertaken (Peters et al., 2013); e.g in Study A the co-researchers (Asaf Bitton, Russ Phillips) were also two of the pioneers and main drivers of the "Harvard Academic Learning Collaboratives" in Boston. In Study B, the co-author (Soma Stout) was one of the initiators of the population health strategy of the "Cambridge Health Alliance" and senior advisor in the domain of Population Health at the Institute of Healthcare Improvement. Furthermore, all the key experts interviewed possessed deep knowledge of the interview topic. The knowledge and experience of the sample interviewed was enormous, very powerful and

probably more compelling than quantitative data. In particular in the rapidly evolving field of population health initiatives, this kind of experience and knowledge is surely very useful (C. Anderson, 2010).

A main strength of Study C is its exploration of a previously poorly examined and stigmatized research field. For the first time, a comprehensive study of this kind in this neglected area was conducted with such a large sample. Health was assessed in a comprehensive way to include different determinants, such as living conditions or personal resources of the sample. Compared with previous studies, the study included different work settings (e.g. street vs. escort services) and recognized the differences between self-employed women working in their own salons and women with addiction problems or migrant sex workers. The study therefore allowed the correlation between the different working settings and living conditions with mental health status to be examined. Moreover, the results provided an impression of the concrete needs and the barriers to health access and included an important aspect of health literacy, such as the knowledge about existing health and social services. Through the comprehensive approach described, Study C therefore overcame several limitations in previous research (described in chapter 2.2.1) and contributed important insights in an unexplored field and allowed the appropriate services to be developed and designed in the next step.

In terms of limitations, the following aspects, not having been mentioned in section 5.3, should be considered. The strengths of the studies are often also their biggest weakness. One of the main challenges in this kind of qualitative implementation research is therefore its complexity, reflecting the complexity of the real world (Lanham et al., 2013; Peters et al., 2013). This applies to all three studies and to the thesis in general, whose overall topic of healthcare system transformation is complex in terms of content, but also on a methodological level (Kannampallil, Schauer, Cohen, & Patel, 2011). Accordingly, the research questions of the studies are broad and there is a wide array of contextual factors influencing implementation and producing unpredictable effects.

The complexity is also reflected in another limitation of the studies, in their ***context variation***: in all three studies, the context and/or the interviewed sample was heterogeneous, which makes it difficult to compare with other studies or to derive robust implications. At the same time, the study did not claim to do so and to some extent the variation was taken into account into the research design of both studies. For example, in Studies A and B it was explicitly assumed that “emerging patterns” that apply to such a varied sample, must indeed represent key factors that can be applied in multiple contexts. The consistency of our findings in both studies, indeed suggest that important themes were identified that are likely to be relevant to others pursing similar goals. It is therefore important to test the developed framework in other settings to validate and enhance them.

An important aspect of Studies A and B not in terms of limiations in general, but in term of "limitation in informative value of the conclusions" is the unexplored transferability of the results to Switzerland. As the research method was not designed to achieve this, the results of study A and B do not allow valid conclusions to be drawn about the transferability of the findings to the Swiss context. It is therfore important to examine this in further studies.

Nevertheless, there are several implications, suggestions and inputs derived from both studies for Switzerland that need to be considered in practice and research, as discussed in the next chapter.

5.4 Implications

Based on the findings of the studies presented, implications for future research, as well as for practice and health policy, are derived and discussed in this section.

5.4.1 Implications for further research

All three studies analyzed important aspects to support the transformation towards a more collaborative and comprehensive healthcare system. However, this discussion remains on an abstract level that needs to be examined in much more detail. In the following, different implications for further research are discussed.

Results of Study C show that an important vulnerable group has a much higher rate of mental health problems than the general population, faces unequal access to healthcare and does not receive adequate care in the Swiss health system. Further research therefore has to examine how these needs can be adressed and which interventions and approaches might be succesful. As a first step, it is important to examine in more detail the different health needs of the various subgroups of sex workers. To achieve this, the existing large dataset from the overall research project of study C could be analyzed in more detail, as it allows specific information about social and health indicators to be obtained, as well as comparison of the different work settings with several health needs. Based on a such a detailed analysis as a second step, an intervention study could be conducted to test and evaluate appropriate interventions.

A more detailed analysis is also needed for the two developed frameworks of Studies A and B. Each element of the theoretical frameworks described *(figure 4 and 5)* needs to be refined and examined in depth in further studies to be truly applicable. Furthermore, both frameworks developed must be replicated and tested in other settings. Further research would need to examine if the different frameworks are useful in guiding the development of such a "learning collaborative" or the establishment of clinical-community partnerships in general. As type, intensity and tailoring of the interventions, such as training, support materials, coaching, were found to be important determinants of effectiveness in "change facilitation" (Baskerville et al., 2012), research would also need to define and test the optimal "resource and change facilitation package" for Academic Health Center teaching practices. More details are required on how best

to develop and implement each described element of the theoretical framework in concrete terms. This is more important for the results of Study B. In contrast to the well-evaluated concept of Learning Collaboratives, the converged building blocks of Study B are still at an early stage and are not evaluated yet. Further research would need to test the developed framework as a whole, but also each building block separately and would need definition of each building block with more granular details to create an optimal change packet and specific implementation strategies.

Most importantly, the adaptation and transfer of the theoretical framework (*figure 4 and 5*) of Study A and B to the Swiss context would be of utmost interest. The US and Switzerland differ in many variables, particularly in the structural components of the healthcare system, as well as in demographical and cultural aspects relevant for success, described as follows.

Whereas the concept of Learning Collaboratives in Study A is a well examined concept in the USA and is used regularly to support change in healthcare, it is still unknown in Switzerland. There are several factors, such as the size of the collaboratives and patient numbers that are not comparable with smaller clinics and many lone practitioners in Switzerland. Moreover, the teaching environment of teaching practices in the U.S. differs in several ways from Switzerland, as here teaching is carried out mainly by university hospitals and these, with the exception of some polyclinics, do not offer similar primary care structures like those in the U.S. However, the implementation of PCMH in the U.S. has proven to be easier in smaller practices than in complex and bigger organizations (Bitton et al., 2010). It may therefore be surmised that the smaller und clearer structures in Switzerland would indeed facilitate implementation.

In addition to the structural, health-system specific differences, mentioned above, cultural differences also have to be considered. In both Studies A and B, the culture of quality improvement and continuous learning was a key prerequisite for the success of a Learning Collaborative and the implementation of clinical-community partnerships. However, it must be

remembered that the Swiss culture and mentality is different and that it is not foreseeable whether this learning and improvement culture will also result.

Furthermore, the conditions and health determinants in the U.S. and Switzerland differ markedly. As shown with the concept of the "healthcare paradox" (Bradley & Taylor, 2013) in Chapter 2.1, it may be assumed that countries based on a social system show better health determinants and are therefore under less pressure to collaborate with community services to address various the determinants of health. Switzerland has a mandatory health insurance and social security system that prevents harmful or hazardous situations, such as homelessness or lack of access to health care. Switzerland also has good public education and and transport system, as well as access to healthy air and nature with many opportunities for physical activity. It must be expected that those typical triggering factors for clinical-community collaboration initiatives are less widespread in Switzerland and a burning platform, as an important driver for change, is missing.

Conversely, various managed care models, such as Health Maintainance Organizations (HMOs)[4] and other forms of medical networks, have expanded rapidly in Switzerland in recent years. These forms of medical networks already use quality circles as a method of improving high-quality care (Berchtold, 2013; Berchtold & Peytremann-Bridevaux, 2011). The necessary base could thus be provided to implement new models, such as the PCMH, through "learning collaboratives". Furthermore, it is fair to assume that the federal structures in Switzerland are conducive to collaborative concepts, especially as cooperatives have a long tradition in Switzerland.

All these described aspects make it important to contemplate a possible transfer of these concepts to Switzerland and need to be studied much more in detail. Further research should

[4] Health Maintainance Organizations are a type of insurance model, where insured people choose an managed care type of basic health insurance and therefore restrict their choice of doctors in return for lower premiums. The general practicioner take the role as a gatekeeper and coordinates the care of his assigned patient population (Berchtold & Peytremann-Bridevaux, 2011).

therefore focus on a clearly outlined pilot project in a pilot community with motivated practices that strive to implement a Patient Centered Medical Home as a first step and are willing to participate in a Learning Collaborative. Ideally, there would be another community with similar characteristics to the experimental group that does not participate in any intervention and would therefore allow the necessary comparison. The framework described in Study A could be used to guide the implementation, but should be enhanced with a concrete impact model and evaluation plan to allow measurement of the different impacts. Such a study would allow testing of the framework and to study whether the concept of learning collaboratives is transferable to Switzerland. A similar approach could be taken to test the building blocks described in Study B.

Further research would also need to include the evaluation and comparison of existing learning collaboratives or clinical-community partnerships and to find a way to capture and measure important constructs for successful implementation, such as engaged leadership or culture change. This would require a concrete measurable definition of key concepts such as "clinical-community partnerships" with measurable indicators that can be linked with outcome variables. In the coming years, it will therefore be crucial to monitor how such initiatives develop in different settings and how the organizations involved evaluate these initiatives.

In addition, there is a need to evaluate whether these clinical-community partnerships really improve the health of the population in the end. It has been assumed that clinical-community partnerships could achieve better outcomes, but a rigorous evaluation is missing. Further research would therefore evaluate this type of clinical-community partnerships in a long-term perspective to demonstrate the value of these partnerships over time.

Last but not least, Studies A and B have shown several success factors that need to be addressed on a policy (system) level, such as a necessary data exchange infrastructure or a payment structure with financial incentives that foster the necessary cultural change and pay for the right interventions to improve value instead of volume. The predominant payment mechanism in the U.S. and in Switzerland is still a fee-for-service (FFS) method, which pays

each procedure, treatment, service and care setting separately (Porter & Kaplan, 2015). It would therefore be of critical importance to test different payment models, such as global (provider) budgets[5], capitation[6] or "bundled payments[7]". Such models are used and tested in the U.S. (Chen & Fan, 2016; Rittenhouse , Shortell , & Fisher 2009; Rosenthal 2008), but also in Germany in "Gesundes Kienzigtal" (Hildebrandt et al., 2010; Hildebrandt et al., 2015) and the in the Netherlands (Czypionka, 2011; Struijs & Baan 2011) which might be more similar in terms of transfer and where results seems to be very promising (Trageser et al., 2014). These examples show just some of the many elements and incentives necessary to transform the health system, which must be supported and pre-driven on a health policy level. Further research would ultimately have to focus on understanding the complex processes on a health system level and on understanding of beneficial strategies and critical elements for successful health policy to really contribute to concrete practical change. This kind of research will be crucial to cope with future developments in healthcare. How possible health policy interventions could look on the practical level is described in more detail in the next chapter.

5.4.2 Recommendations for practice and health policy

Although there is a need to test whether the findings of Studies A and B are applicable to Switzerland, there are several recommendations for practice and health policy that may be deduced from *Studies A and B*. In this section, the attempt was therefore made to aggregate these different results into a greater whole with possible consequences for health policy.

[5] Global budgets: "Under global provider budgets, the payer allocates a fixed annual budget to each providing organization, typically based on an assumed volume and mix of patients and services." (Porter & Kaplan, 2015, p. 4).
[6] Capitation: Under capitation, providers receive a fixed amount per patient per year and are responsible for all of that patient's medical needs (Porter & Kaplan, 2015, p. 3)
[7] Bundled payments : "bundled payment is a single payment that covers all the procedures.and services involved in inpatient, outpatient, and rehabilitative care for a patient's medical condition. For chronic conditions and primary care, a bundled payment is a single payment to cover the care for the condition or population segment over a specified time period" (Porter & Kaplan, 2015, p. 1)

As shown in theory (see Chapter 2.3) and confirmed in Study B, effective primary care appears to be crucial for a sustainable health system to improve population health and address the various challenges, such as increasing chronic diseases and costs (Shi, 2012; Starfield et al., 2005). Health policy measures must therefore focus on strengthening primary care to address these challenges and building the necessary foundation for clinical-community partnerships in a later step.

Health policy leaders also need to understand that the necessary transformation of the healthcare system has to be considered as a complex change process that needs to be supported by the appropriate instruments (Miller et al., 2010) and by stimulating system thinking with new care models (Bengoa, 2013). The longstanding health services research tradition in the U.S. shows that such a change is ideally based on pilot projects implementing new concepts of care driven by motivated practice leaders and accompanied by scientific implementation research (Centers for Medicare & Medicaid Services, 2017; Nutting et al., 2011). Pilot projects are an important starting point in establishing collaboration around a specific issue (health need or specific group) and in building the necessary capacity on a local level to develop the basis for a population health perspective (Harvard Medical School Center for Primary Care, 2011; Nancarrow, Roots, Grace, Moran, & Vanniekerk-Lyons, 2013). Applying the findings of Study A and B to a larger health system perspective, such projects would need to be organized and sustained on a local level by practices or communities themselves, but at the same time, facilitated by a supportive environment (e.g. government) with appropriate rules, concepts and incentives and rigorous evaluation. The implementation of new care models as an important part of the transformation of the health system would therefore require an alignment of top-down and bottom-up approaches, also described as integrators (Bengoa, 2013). As comprehensive integrated health systems, such as Kaiser Permanente or Cambridge Health Alliance (two of the case studies described in study B) are missing in Switzerland, national or cantonal health policy agencies would ideally need to take the role of integrator and facilitator

of such pilot projects, as this has been done by the Center of Medicaid and Medicare Innovation Center in the U.S (Centers for Medicare & Medicaid Services, 2017). This means that Health Policy would need to create the conditions to launch such a collaborative process in practice and offer a favorable policy environment to support it. There are three success factors described in Study B that would need to be considered on a policy level to foster the necessary culture change, as they require policy decisions and cannot be altered by the providers alone: these involve (1) setting the right incentives and promoting aligned funding; (2) enabling data and information exchange based on rigorous and transparent data measurement and (3) building the workforce capacity with the right skill-mix, for example through inter-professional education and training. This is explained in more detail below.

Incentives: research shows that the resource allocation system in most countries, as well as in Switzerland, is actually financing fragmentation (e.g. hospitals, primary care, social services) instead of paying for integrated work and the corresponding results (Barrett, Miller, & Frumkin, 2014; Bradley et al., 2011; Bundesamt für Gesundheit, 2009, 2013; Kindig & Isham, 2014; Schoen et al., 2011). As shown in Studies A and B, it is therefore crucial to set up incentives that encourage coordinated work, incent a focus on community health and align remuneration with provider performance and the desired clinical transformation with the achievement of population health goals and outcomes. Kindig called for the development of a "pay-for-population" health performance system that goes beyond medical care to include financial incentives for non-medical care determinants of population health (Kindig, 2006). Health policy needs to find a payment model that supports the necessary shift from acute and inpatient care to more collaborative and community care, with shared accountability for a specific patient population, described in its most extreme form in the accountable health community model (see Chapter 4.2.3). This requires us to think about new coalitions (e.g. insurance companies) and new payment methods, such as global budgets, bundled payments or "pay for performance" models described in the case studies.

Data exchange / information flows: Another condition necessary to drive change shown in both studies is the rigorous measurement of outcomes and constant evaluation of actions taken and changes implemented (Kilo, 1998). This requires the availability of data systems and information technology (e.g. electronic health records) that help to connect various partners and to measure and share patient outcomes. Data-driven work and decisions need to be based on overall health outcomes and not only on clinical outcomes and processes (Kellermann & Jones, 2013). From a population health perspective, this requires incorporation of data on social determinants of health in health-monitoring systems (Stoto, 2014). Considering the enormous importance of data exchange for population health and the current deficits in e-health implementation in Switzerland, e-health infrastructure needs to become a priority in health policy. It is critical to avoid fast technological trends replicating an e-health architecture that reflects the current fragmented organization, reinforcing the silo effects. Instead it needs to be designed based on models of the future (Bengoa, 2013).

Capacity building: all three studies showed the importance of interprofessional collaboration, leadership and improvement skills, as well as a holistic understanding of health to address overall health needs and to work in new models of care. Findings confirm that this not only requires a cultural change in mindset and values, but also specific competencies and knowledge to work collaboratively (Frenk et al., 2010; Fuchs, 2013). As shown in Study A, this needs to be integrated in the training of the health workforce and facilitated by changing the teaching environment (e.g. shared learning, re-design of workspace). Since the training lies in the competence of medical schools, pressure to change could be provided on a policy level by changing the accreditation rules and the competencies needed in different professions and the corresponding health professions laws (Bitton et al., 2014; Fraher et al., 2013; Ricketts & Fraher, 2013).

Ultimately, it can be assumed that the change processes driven by initiatives around the globe will serve as a catalyst for change at the local and global level. It is of utmost importance

to evaluate and publish these various pilot projects by strengthening implementation research. This would not only allow health policy to be informed, but also to the transfer and spread of successful models. If these initiatives succeed in improving population health and health policy is able to support the transfer of these learnings, the change might be disruptive and substantially 'flip' the healthcare system from individual care providers towards coordinated teams, from 'volume' towards 'value' and from 'healthcare' towards 'health' (Bisognano, 2014; Christensen, Bohmer, & Kenagy, 2000).

As described in Chapter 5.2, study C provides important knowledge about the health of a vulnerable group, such as female sex workers, that is important for practice to provide the appropriate care. The results of the study have revealed several areas where practical support is needed. The significant higher rate of mental disorders of sex workers than the average population illustrates, for example, the importance of psychiatric care. The several negative side effects of their work, such as the high exposure to violence, social exclusion or financial pressure further shows that to improve the health of sex workers, medical care is not enough and housing and social and legal support, security measures and work integration measures, such as language training and job coaching, are also required. As social support positively influences mental health, it is evident that a lot could be done for these women through clinical-community partnerships. However, the results have shown that only a small percentage of sex workers know about the existing counselling services. Furthermore, there are several barriers, such as missing language skills, illegality or a criminal network this makes it difficult to establish contact. It is therefore of utmost importance to find new ways of reaching those women, such as through interprofessional outreach services or mobile teams or the use of translators and peers. The methods of recruitment used in study C might provide some ideas for practice on how to contact the heterogeneous sample.

5.4.3 Conclusion

Switzerland and the U.S. share similar health policy challenges, such as the increasing number of chronic patients that require a strong primary care foundation and well-functioning collaboration between members of the healthcare and community services (Bundesamt für Gesundheit, 2013; Lancet, 2014; Mossialos, Wenzl, Osborn, & Anderson, 2013; OECD, 2013; Schoen et al., 2011; Schweizerisches Gesundheitsobservatorium, 2015; B. W. Ward et al., 2014). Switzerland has had difficulties so far in implementing new care models to address this challenges (Bundesamt für Gesundheit, 2012; De Pietro et al., 2015). In contrast to the U.S., there is still no established health services research that allows an understanding of how to facilitate the implementation of new care models or to comprehensively assess the health needs of specific groups of the population. There is therefore a lack of scientific evidence to develop evidence-based health policy measures to support integrated care approaches. This thesis is intended to contribute to some of these limitations by studying change methods and success factors for the implementation of new care models such as the PCMH or clinical-community partnerships and by comprehensively assessing the health of a vulnerable group, such as sex workers, as an example of a potentially underserved group.

The findings of Study A and B have confirmed that new models of care are difficult to implement in daily practice and need to be considered as complex change processes, which need targeted support and change facilitation. In this regard, Study A succeeded in demonstrating that change methods, such as “Learning Collaboratives”, work even in complex systems, such as Academic Health Centers, and that they can contribute to a change in culture, processes and collaboration. Study A identified a common framework for medical home transformation within AHC that could be replicated by other Academic Health Centers. The results therefore provide concrete practical value and might be of use for transformation efforts in practice. Study B contributed to understanding important innovative developments in

healthcare by studying current ways in the field to foster population health through clinical-community partnerships. The framework developed with six building blocks might also be helpful for practice and policy to promote the development of succesful clinical-community partnerships.

The results of study C showed that sex workers are indeed an underserved group in Switzerland with a need for comprehensive biopsychosocial care. The study can therefore be used as a good pratical example to demonstrate the importance of clinical-community partnerships to address the various determinants of health. It provides further valuable information about an unknown population for the development of adequate interventions and services for sex workers as the next step. The results ultimately contribute to equal access to care of the whole population. At the same time, many questions remain open, for example, how the women can be reached or how adequate services look and can be implemented in such a way that sex workers will use them.

All studies are intended to be of concrete value in practice and to encourage innovation in healthcare. This thesis thus contributes to the generation of knowledge to support the implementation of comprehensive care approaches and allows impetus and recommendations to be derived for future research as well as health policy. It is also an initial step towards evidence-based policy decision-making. These recommendations, however, remain on an abstract and generic level and require further health services research. The theoretical frameworks provided need to be tested in practice and the transfer and applicability of the models to Switzerland in general, but also the individual components themeselves, need to be examined.

CHAPTER II

Transforming Primary Care Practice and Education: Lessons from Six Academic Learning Collaboratives

Ursula Koch, Asaf Bitton, Bruce Landon & Russ Phillips

A similar version of this chapter is published:

Koch, U., Bitton, A., Landon, B. & Phillips, R. (2015). Transforming Primary Care Practice and Education: Lessons from Six Academic Learning Collaboratives. *Journal of Ambulatory Care Management, 40(2),* 125-138. doi:10.1097/jac.0000000000000117

Abstract

Background: New primary care models such as the Patient Centered Medical Home (PCMH) are being implemented nationally, but adoption has been slower in academic teaching practices. Some teaching practices are using learning collaboratives to transform both primary care education and practice.

Objective: To describe a common framework for approaches to primary care practice and education transformation among academic learning collaboratives.

Design and Approach: We used a descriptive and qualitative approach that combined a structured survey with key informant interviews that were coded and analyzed using NVIVO software.

Results: We identified eight collaboratives nationally: six met our inclusion criteria. These six varied in size from 4-53 practices, 10,000-400,000 patients, and 24-700 trainees. Our analysis suggested that the work of the collaboratives could be divided into three distinct phases: 1) building the intent; 2) creating a collaborative structure; and 3) supporting practice transformation. Phase one began with experienced leaders who created a vision for change while taking advantage of a window of opportunity. Phase two required identifying technical resources and a structured transformation approach, garnering institutional support, and recruiting practices. Phase three included practice facilitation and creation and maintenance of learning communities that required ongoing data collection and measurement, leadership training, creation of inter-professional teams, resident and patient engagement and residency redesign. Education redesign required team-wide faculty development, a supportive learning environment, time and space to innovate, and the flexibility to try new approaches.

Conclusions: Learning collaboratives foster transformation, even in complex academic practices, but need specific support adapted to their unique challenges. The consistency of our findings across multiple collaboratives and their early successes suggest that our model for transformation provides an approach other teaching practices could employ to transform primary care education and practice.

Introduction

In the era of health reform, payers and providers are increasing efforts to reorganize healthcare delivery to achieve improved quality, better patient experiences and reduced costs. Central to these efforts is the creation of a high functioning primary care system through the adoption of the Patient Centered Medical Home (PCMH), which drives high value care through an increased focus on access, prevention and coordination (Agency for Healthcare Research and Quality, 2012). The PCMH envisions accessible, continuous, patient-oriented, team-based, and comprehensive care delivered in the context of a patient's community (Bitton et al., 2010). Efforts to transform primary care practice are being supported by the development of "learning collaboratives," a structure for collective transformation based on a quality improvement model that implements a series of sequenced changes with shared learning and measurement (Bitton et al., 2014; Institute for Healthcare Improvement, 2003, 2005. ; Langley et al., 2009). This structure helps to transform work processes and organizational culture, and improves performance through positive relationships and trust (Clancy et al., 2013; Gittell et al., 2010; Landon et al., 2007).

Even though most teaching practices are located at academic health centers (AHCs) where the focus is on tertiary care, they are playing a critical role in training the primary care workforce, and providing models for education (Fraher, Ricketts, Lefebvre, & Newton, 2013; Frenk et al., 2010; Fuchs, 2013). Their ability to succeed in practice transformation and to create new models for education may determine whether our nation can meet future primary care workforce needs. However, these AHC-based teaching practices have lagged behind community practices in transitioning to PCMH (Rieselbach, Crouse, Neuhausen, Nasca, & Frohna, 2013). An important question arises: How will AHCs train our future primary care workforce if they are not able to provide opportunities for trainees to work and learn in

transformed practices that mirror practices being created across the country? In this context, we set out to learn how AHC-based collaboratives transform both primary care practice and education. We sought to understand their aims and accomplishments, and how they were initiated and structured. Our goal was to identify a common framework for medical home transformation within teaching practices that might be replicated by other AHCs.

Methods

Participant Selection and Recruitment

Through formal and informal contacts and a search of the literature, we identified eight collaboratives that were redesigning both primary care practice and education in AHC practices. Six of these collaboratives met all three of the following inclusion criteria for this study: 1) the use of a medical home across multiple primary care practices that applied to all patients; 2) the creation of a learning community with some form of financial and/or pedagogical support for transformation; and 3) the training of residents from one or more residency training programs.

Data Collection and Analysis

We used a descriptive and qualitative approach. We asked leaders from each collaborative to complete a questionnaire describing the demographics of participating practices, sources and amount of funding, types of technical assistance, evaluation plans, and measured outcomes. We interviewed 20 key informants using a semi-structured interview. The areas of focus included genesis of the collaborative, transformation strategy and change package, residency redesign, and experience to date. We interviewed a minimum of three respondents (mean = 3.3, total = 20) from each collaborative including the overall leader, the education leader, and a clinical leader from a participating practice. Interviews lasted 45 minutes, on average. Each

collaborative responded to the request for interviews and completed the survey. A study investigator (UK) performed each interview by telephone or in-person.

Analyses

Each interview was recorded and transcribed. Using NVIVO software, three reviewers that included one co-author (UK) coded all interviews and refined codes as new or converging concepts were identified. The reviewers sought to identify common themes that explained how and why collaboratives were initiated, what enabled their implementation, and how their work was sustained over time. Differences of opinion were resolved by consensus. As a final validation, findings were shared and reviewed with key informants. The process was intended to be descriptive and focused on a summary of insights gained from the interviews and review of presented material. The Harvard Medical School Institutional Review Board approved the study.

Results

Characteristics of the six participating primary care learning collaboratives are shown in Table 1. The collaboratives were widely distributed, with the Veterans Administration involving practices spread across the nation, and the others being focused in various regions. The collaboratives ranged in size from four to 53 practices and 24 to 700 residents, and provided care for between 10,000 to 400,000 patients.

Using informant interview responses, we were able to categorize the work of the collaboratives into three distinct phases (*Figure 4*).

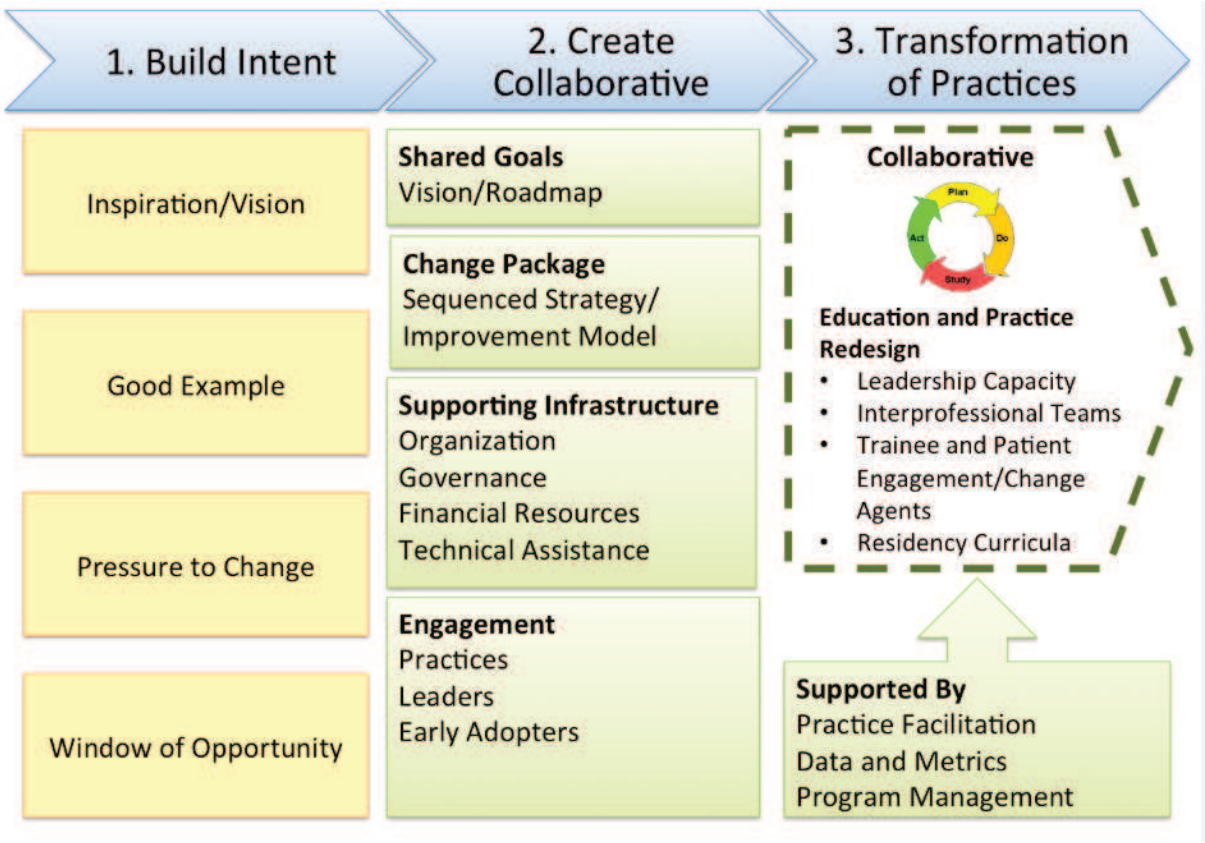

Figure 4: Phases of Building a Learning Collaborative

Phase 1: Building the Intent

In each case, leaders recognized that their primary care training model was ill-suited to train our future workforce and were inspired to be at the forefront of "disruptive" change that focused on team-based care.

> *"The residency practices don't serve as good models of primary care. We needed to make them better practices that would attract medical students."*

> *"We had to do better by our patients and the only way to do better would be to do something so big and crazy that it would be a shock to the system. Little changes were recipes for continued mediocrity."*

All collaborative leaders had a clear vision of a model primary care practice and the potential of learning collaboratives.

> *"There's one thing to have this feeling how you want to do it, but (another) to have the skills around process change, team building, communication, systems, and quality*

> *improvement. You have to know what you're talking about before you tell other people what they might want to do."*

In each case, collaborative leaders took advantage of a "window of opportunity" created by payment reform, or resources to support transformation.

> *"Our hospitals were taking on financial risk for total healthcare costs so they signed on because they realized that they needed to improve their primary care."*

Phase 2: Creating the Collaborative Structure

We identified a common sequence of collaborative creation. Collaborative leaders planned and structured the collaborative, agreed on goals, selected a quality improvement and practice transformation model ("change package"), obtained financial resources, encouraged leadership engagement and institutional support, and created an organizational structure. This structure provided organization and governance and arose from the university or medical school, or from an external organization. Resources often included access to a shared information, and technical assistance with practice coaching or facilitation. All collaboratives facilitated learning through in-person learning sessions, webinars or conference calls (Table 3).

All six collaboratives included in-person collaborative learning sessions (occurring at least twice annually) separated by action periods when practices did the work of improvement. Five collaboratives adopted plan-do-study-act (PDSA) cycles of improvement testing, and all focused on the implementation of the PCMH model (Table 2). The change package was intended to build capacity for change. In the words of one respondent, the goal was to:

> *"Help them understand that what they had done in the past is not going to work and that the sequenced measurements and methodical quality improvement tactics would help them get to where they wanted. Not working harder, not wishing that it were true, but rather having a method and a way to do this."*

> *"A big piece of it was not just implementing [the] Patient Centered Medical Home, but implementing an ongoing sustainable change in quality improvement effort within the practices."*

All collaboratives engaged local practice leaders, who were typically educators and clinicians. Practices were required to form inter-professional teams (including residents), attend meetings (e.g. learning sessions and conference calls), use metrics to assess change sequentially, and share data regularly across the collaborative (Table 3). Financial incentives and social strategies (e.g., external medical home recognition and competition among practices) were used to engage practices and to assure institutional support.

Phase 3: Transformation of practices

All collaboratives found that culture change was essential to create a learning community that embraced ongoing quality improvement. Iterative process change cycles were keys to developing capacity by bringing teams together around common work.

> *"We learned that we were doing too much didactic teaching at the beginning, too much telling people what to do. So we had to move very aggressively towards interaction… You have to learn it by doing … it's continuously testing and doing and learning and picking the right measures and guiding them to a coaching strategy while we engage their leadership in making sense of this whole effort and linking it with the existing efforts at each institution."*

Requiring practices to come together to share examples of both successes and failures helped to build trust and a culture of improvement and collaboration. Viewing others' progress inspired practices that were not doing as well. For example, one respondent reflected that:

> *"The other thing that made a big difference was over time some practices and programs really starting taking off and making a lot of change. That had a ripple effect."*

> *"Getting suggestions as far as what works at other places and what hasn't worked is extremely helpful rather than trying to reinvent the wheel each time."*

Creating accountability was a very important feature of the learning community. The priorities of the practices generally drove the concrete content areas of change (e.g. choosing to "huddle" as a team prior to seeing patients). Collaboratives struggled to balance the need to provide structure (e.g., sequenced strategy for change, required data) to hold participating practices accountable while offering sufficient flexibility to adapt to the local practice context.

Collaborative leaders tried to model flexibility by testing a variety of educational and transformational approaches at learning sessions and other meetings. Collaboratives differed in required accountability in terms of goals, metrics, and time frames, ranging from strict accountability to no requirements, but all collaboratives agreed that without accountability there was no change. Lessons included:

> *"Data drives a lot of your work."*

> *"We tell the practices that they need to have a clear vision and we work with them on their own objectives. We didn't do that for the first three years, because we were reluctant to feel like we were imposing our will. We've learned that if you don't have accountability, clear goals and metrics, things just don't get done."*

External technical advice about transformation and project management was essential but needed to flexibly adapt to local context and value available expertise. For example, facilitators had to recognize the complex job descriptions held by academic faculty, and ever-changing resident schedules. Project managers were able to maintain an ongoing focus on transformation goals to keep practices moving forward. Advisors helped to provide validation and to identify relevant benchmarks and approaches. The extent of practice coaching and project management support varied substantially across collaboratives, in part related to variation in funding. Some collaboratives had only small grants that supported expenses related to meetings, while others supported the practices with generous financial or personnel support (Table 2).

Although the change package was specified and selected during the second phase, it was refined when practices "did the work." The following four key components of the change packages emerged: creating leadership capacity, inter-professional teams, engaging residents and patients as change agents, and residency redesign.

Leadership Capacity

The predominant model of leadership was flexible inter-professional leadership where leadership was shared among team members. Achieving this goal was sometimes difficult as non-physician team members sometimes felt particular challenges when it came to leadership.

> *"It took a lot to have shared authority and responsibility. (Non-physicians) were insecure about it, and felt they didn't have the skills. Physician co-directors came to this with experiences as leaders. That's not the way NPs and nurses are trained. And that put them at a real disadvantage. And so those are issues that we've recognized as contributing to the challenge of getting a true collaborative leadership that's agnostic to profession"*

Creation of Inter-professional Teams

An early focus for the collaboratives was creating effective inter-professional teams with each member working at the "top of their license." These were seen as critically important and represented distinct changes from existing models.

> *"Empowering the staff… that also is a part of the cultural change."*

> *"You need to understand, who is in a team and how to communicate."*

> *"The care teams also became the quality improvement teams. It became a way to learn how to work together within the context of the quality improvement teams."*

Engaging Trainees and Patients As Change Agents

Residents were often involved through quality improvement projects. For some, inclusion of trainees in the redesign process was viewed as central to their strategy from the outset, while for others this became a lesson to be learned over time as trainees were incorporated as "change agents" long after the collaborative had begun. Collaboratives highlighted the residents' innovative thinking, strong vision and commitment, as well as the opportunity to leverage peer motivation as an important bottom-up force for change within the practices.

> *"The residents who have been involved have been essential to the process. They have great ideas, and they're the future workforce. And their peers see that and hear it. So if they're not on board then I don't know what we're doing."*

> *"There are things that the residents can say that speaks to their peer residents with an authority that I cannot bring… it's also true that their perspective [is] very much the frontline of what we do… And so, there's learning that I can take form the residents that are involved."*

Patients brought energy to the transformation process and their presence helped to create more open discussion and prioritization. However, most practices were reluctant initially to involve patients in the work of transformation because they did not want to put practice shortcomings on display. Practices that engaged patients did so through advisory councils, structured feedback processes (e.g. through focus groups, comment cards) or by integrating patients into improvement teams; those that did found it beneficial.

> *"For the changes to become truly transformative, to change the whole nature of the relationships in healthcare, the patients have to be a part of the process."*

Residency Curricula Redesign and Implementation

Collaboratives offered a package of curricular elements that could be adapted by the practices to address local needs and context. This instructional framework was closely aligned with the overall change package. All of the collaboratives focused on experiential learning with reflective phases and different degrees of formal instruction. Residents were incorporated into learning sessions. Although didactic formats varied, they all focused on content that included inter-professional learning, quality improvement, medical home principles, patient engagement, leadership and management training, and communication skills (Table 4).

Collaboratives found that effective experiential (workplace) learning depended on a pedagogical environment that modeled and supported new ways of providing care. Education occurred within the context of practice teams, ideally by trainees from different professions working and learning together from inter-professional faculty. If all members of the team were to influence learning, all staff must be developed as teachers, and the collaborative needed to be designed around the teaching mission (e.g., by housing team members in shared space for

both practice and education). Rescheduling and logistical support were key structural components that needed to be integrated as part of residency redesign.

The Challenges of Working in AHC teaching practices

The complex and hierarchical culture of AHCs was a challenge for the collaboratives as it was sometimes difficult to engage across disciplines and to encourage patient-centered relationship-based coordinated care. Part-time practitioners, high staff turnover, and large and complex patient panels created additional challenges. Separate reporting structures within AHCs created barriers to team alignment. Basic tenets of advanced primary care, such as "team huddling," posed challenges, because getting part-time providers together in real time was not easily accomplished. Residency redesign challenges included finding ways to help faculty simultaneously learn and teach new practice improvement skills, and sustaining the institutional commitment to the educational mission in the face of challenges to primary care practice. Other challenges included adapting to residents' workload as part-time providers of patient care and the complexity of meaningfully incorporating residents into teams when their schedules and responsibilities varied dramatically from month to month and across residency programs.

> *"It's hard and extremely busy. They see hundreds of patients a day, many of whom are poor and have enormous needs and you're asking them to completely change the way they work while they're getting more patients… and while they have huge staff turnover and… most of them are understaffed to begin with."*

There were also concerns that AHCs devalued primary care.

> *"Some of the senior leaders are in the old mindset that the people who rule the hospital are the specialists and the surgeons, and that primary care is on the bottom."*

Key Differences Among Collaboratives

Important structural differences existed among the collaboratives in terms of the duration of work, degree of funding and support, and requirements for participation or curricula (Table 2). As the transformation work was focused on both practice and residency redesign, it was often

difficult to distinguish one effort from the other as change always had an impact on trainee experience and residency redesign always influenced practice transformation. Some collaboratives used this mutual dependence as a part of their strategy, while others prioritized practice transformation ahead of residency redesign.

Early Results

All collaboratives are evaluating outcomes. Four collaboratives are collecting data on trainee experience and learning. One collaborative is evaluating changes in the educational environment and one is evaluating a new e-learning curriculum. All collaboratives are sharing stories of the changes in their practices from the perspective of faculty clinicians, staff, and trainees. Leaders reported that the collaboratives were successful in creating teams, and in creating cultures of trust, improvement, innovation, collaboration, and learning. For one collaborative, external PCMH recognition was an important measure of success. Another used a validated self-report measure, the Patient Centered Medical Home-Assessment (PCMH-A) to demonstrate improvements across all the areas of practice change and all partner institutions have chosen to extend the duration of the collaborative.

> *"We created a community that's excited."*
>
> *"We created teams where there were none."*
>
> *"We created a lot of hope where there wasn't much."*
>
> *"We built a learning community, where (we) learn from each other and share things with each other…"*

All collaboratives reported some positive clinical outcomes based on tests of change within practices (Forman et al., 2014; Reid et al., 2011), but data collected systematically across an entire collaborative are not yet available. Those that studied resident engagement and learner skills and knowledge reported improvements (Jortberg et al., 2014). Collaborative leaders were

convinced that a nuanced evaluation that documents changes in culture, leadership capacity, and team function is essential to sustain their work.

Discussion

We examined six novel academic primary care learning collaboratives and described a common transformation process and series of key steps that should be useful for other systems that want to transform primary care practice and training together as illustrated in *Figure 2*. We found that learning collaboratives effectively support change, even within complex AHCs. The learning collaboratives we studied created a culture of collaboration and shared learning between trainees and teachers, and a culture defined by teamwork where responsibility, accountability, and leadership moved from a single individual to an interdisciplinary team.

These collaboratives were similar to non-academic collaboratives in important ways (Nadeem et al., 2013): they sustained change by building local capacity and ownership, providing a support network, and creating a culture of continuous learning and quality improvement. Like all collaboratives, they needed to overcome inertia, lack of internal expertise, poorly aligned payment incentives, and inadequate information systems. Changes in payment and leadership engagement were identified as critical facilitators of change and sustainability (Fuchs, 2013; Nutting et al., 2011; Vretveit et al., 2002).

AHC primary care collaboratives differed from other collaboratives in important ways. In addition to confronting the challenges of working in AHCs, academic collaboratives were challenged further by the teaching mission of these practices, and the need to accommodate the schedules of trainees, especially those from other health professions (Egger et al., 2012). Putting residents into teams, and helping them to coordinate care for their patients requires additional time, resources, and planning compared to non-teaching practices (Bitton et al., 2013).

However, we found that the educational mission provides an important impetus to practices to transform, as educators are inspired to prepare their trainees for practices of the future and residents themselves can serve as change agents.

Our work as limited by the small number of collaboratives studied, but only a small number of AHCs are engaged currently in this type of practice transformation. However, the fact that the separate collaboratives converged around a similar general transformation model suggests that we identified important themes that are likely to be and useful to other AHCs embarking on primary care redesign.

In summary, we describe a convergent common approach to primary care transformation through learning collaboratives. The educational mission of AHCs provides an important impetus for these practices to transform. Our findings suggest a path forward for AHCs committed to transforming primary care practice and education within teaching clinics. Clearly, rigorous evaluation is needed to demonstrate the value of these collaboratives over time. The shared knowledge that resides within these collaboratives could be important resources for other AHC redesign efforts. Research is needed to define an optimal change package and resource infusion for AHC primary care practices, and how best to spread change broadly across other teaching practices and to sustain a culture of innovation and continuous improvement.

Table 3: *Learning Collaborative Characteristics*

Name and Location of Collaborative	**Harvard Academic Innovation Collaborative (AIC) (MA)**(Harvard Medical School Center for Primary Care, 2011)	**Colorado Residency PCMH Collaborative (CO)** (HealthTeamWorks, n.d.)	**I3 Collaborative (VA, NC; SC)** (University of South Carolina School of Medicine, 2013)	**Minnesota Primary Care Transformation Collaborative (MN)** (University of Minnesota, 2013)	**Pennsylvania Residency Program and Community Health Center Collaborative (PA)** (Pennsylvania Academy of Family Physicians and Foundation, 2011-2014)	**Academic PACT Veteran Health Administration (VHA), national** (Veterans Health Administration, 2014)
Duration	Phase 1: 2012 – 2014; phase 2: 2014-2016	01/2009 – 01/2015	Phase 1:2006-09 Phase 2: 2009-11 Phase 3: 2012-15	Pilot period: 01/2013 – 07/2014	Phase 1: 2010-14 Phase 2: 2011-14	06/2010 (planning), 07/2011- ongoing
Number of participating practices	19	11	24 (+29 sites)	4	24 + 20 community health center	5 Sites
Average Number of Patients	300,000	64,000	>400,000	>10,000	>19,000	272,110
Number of Residents	457	141	680-700	50	860	554*
Safety Net Practices	25%	10%	Yes	None	50%	Yes
Types of Residencies	IM, Peds, Med/Peds, FM	FM, IM	FM, IM, Peds	FM, IM, Peds, Med/Peds, Nursing, Pharmacy	FM	IM, NP, PA, Psychology, Pharmacy, Social Work, Nutrition

*interprofessional by mandated structure

Legend:

IM = Internal Medicine

FM = Family Medicine

Peds = Pediatrics

NP = Nurse Practitioner

PA = Physician Assistant

Table 4: *Organisation and Structure of the Collaboratives*

	AIC	CO	I3	MN	PA	VHA
Organizing Body	Harvard Medical School Center for Primary Care	University of Colorado Family Medicine, Colorado Association of FM Residencies, HealthTeam-Works	Universities of North Carolina, South Carolina and Virginia	University of Minnesota, School of Nursing, College of Pharmacy	Pennsylvania Academy of Family Physicians (PAFP)	Coordinating Center, Office of Academic Affiliations, US Veterans Health Administration
Application	Yes	No	Yes	Yes	No	Yes
Requirements for participa-tion	Specific goals, metrics/monthy data report; EHR, patient and resident engagement, participation in meetings	All FM residency programs, with one internal medicine program joining once underway; Participation in meetings, practice facilitation, and other practice and curricula transformation efforts	Participation in meetings, monthly data report, interprofessional change team (resident included); staff development	time for meetings and active engagement in redesigning curricula	All FM residencies in PA considered. Fully engagement in meetings, monthly data report, interprofessional change team (resident included)	Interprofessional team, affiliations with nursing & other health professions schools; core educational objectives & outcomes measurement; curri-culum design: min. 30% primary care training; interprofessional faculty: Co-Director model; protected time: leader-ship, teaching & mentoring
Transformation Strategy (Change Package)	IHI Quality Improvement Model (Institute for Healthcare Improvement, 2003) and Qualis/MacColl Center Sequenced Change Strategy (Safety Net Medical Home Initiative, n.d.)	IHI Quality Improvement Model ("Plan-Do-Study-Act"-Cycles); PCMH and Patient Engage-ment Strategies	IHI Quality Improvement Model (Phases: CCM, PCMH; Population Health)	PCFDI[29] Educational Initiative based on PCMH Model[29]	IHI Quality Improvement Model and Chronic Care Model	PACT Model (Veterans Health Administration, 2014) (VHA's version of PCMH). Elements of other strategies included (e.g. Chronic Care Model).
Funding	$14 Million over two years (HMS Center for Primary Care and contribution from each AHC)	$2.9 million from the Colorado Health Foundation	3 Phases: average of $1.3 million/phase through grants	Small grant Minnesota Medical Foundation	$1.3 million/phase from PA Dept of Health, CDC and other grants	VA Funding: $5 million ($1 million per year for each center of excellence)

	AIC	CO	I3	MN	PA	VHA
Use of funding: Residencies	Protected staff time, office redesign, and equipment/supplies.	Protected time, NCQA application; care coordinators, redesign space (Co-location); teaching & patient material	Meetings, buy staff (e.g. nurse), data collection & report.	No funding for practices	no funding for practices	Education and evaluation infrastructure (e.g. Program leadership; Administrative support; curriculum development; trainee stipend
Use of Funding: centralized	Full-time program manager at each large AHC; protected time for practice transformation; learning sessions; leadership academy; coaching; design, operation, and evaluation	Practice coaching, PCMH curriculum, learning sessions, leadership development, IT/EHR consultation	Meetings, webinar, website	Faculty education, evaluation, working groups and meetings	Faculty/staff education, webinars and website, meetings	Coordination Center: (measurement, meetings; practice facilitation, Coordination)

Legend:

PCFDI = Primary Care Faculty Development Initiative

PACT = Patient Aligned Care Team

NCQA = National Committee for Quality Assurance

EHR = Electronic Health Records

Table 5: *Elements of Change / Practice Facilitation*

	AIC	CO	I3	MN	PA	VHA
Interprofessional Teams	✓	✓	✓	✓	✓	✓
Learning Sessions	✓	✓	✓	✓	✓	✓
Webinars	✓	✓	✓	✓	✓	✓
Conference Calls	✓	✓	✓	✓	✓	✓
Shared Website	✓		✓		✓	✓
PCMH E-learning modules		✓				✓
Personal Coaching	✓	✓	✓	✓	✓	✓
Leadership Sessions	✓	✓				✓
Resident Participation on Teams	✓	✓	✓		✓	✓
NCQA PCMH Application		✓	✓		✓	
PCMH Monitor Assessment	✓	✓			✓	
Monthly Update Reports	✓		✓		✓	
Data Sharing Between Practices	✓	✓	✓		✓	✓
Curriculum Redesign Assistance	✓	✓				✓

Legend:
NCQA = National Committee for Quality Assurance

Table 6: *Overview of Trainee/Residency Education Curricula*

	On the job	Lecture	E-learning Modules	Learning Sessions	Workshops working groups	Webinars	Program (e.g. Leadership Academy)
Promotion of Inter-professional training and collaboration	I^3, MN, VA (local); CO, AIC, PA	VA (local), CO	CO, VA (local)	MN, AIC, PA, VA (local and national), CO	MN, VA (local), PA, CO	CO, PA, VA (national)	MN, VA (local)
Principles of PCMH	I^3, MN, VA (local), CO, AIC, PA	I^3, VA (local), CO, PA	CO, VA (local)	I^3, MN, CO, AIC, PA, VA (local)	VA (local), CO, PA	I^3, CO, AIC, PA	CO, VA (local)
Leadership/ Management skills	I^3, CO, AIC, PA, VA (local)	PA, VA (local), CO	CO, VA (local)	I^3, CO, AIC, PA, VA (local)	VA (local), PA, CO	AIC, PA	CO; AIC, VA (local)
Communication skills	I^3, MN, VA (local), CO, PA	VA (local), CO, PA	CO, VA (local)	MN, VA (local), AIC, CO, PA	VA (local), CO, PA	PA	AIC, CO, VA (local)
Quality improvement skills (e.g. Lean/Six sigma)	I^3, MN, VA; CO, AIC, PA, VA (local)	I^3, MN, VA (local)CO, PA	I^3, VA (local), CO	I^3, CO, AIC, PA, VA (local and national)	VA (local and national), CO, PA	I^3, AIC, CO, PA	AIC, VA (local and national)
Practice redesign (Change Management)	I^3, CO, AIC, PA, VA (local)	I^3, CO, PA, AIC, VA (local)	I^3, CO, VA (local)	I^3, CO, AIC, PA, VA (local)	CO, PA, AIC, VA (local)	I^3, CO, PA, VA (local, national)	AIC, VA (local)

Legend:

AIC = Harvard Academic Innovation Collaborative

CO = Colorado Residency PCMH Collaborative

I3 = Virginia, North and Southc Carolina Collaborative

MA = Minnesota Primary Care Transformation Collaborative

PA = Pennsylvania Residency Program and Community Health Center Collaborative

PACT = Academic PACT Veteran Health Administration (VHA), national

CHAPTER III

From Healthcare to Health: A Proposed Pathway to Population Health

Ursula Koch, Soma Stout, Bruce Landon & Russ Phillips

A similar version of this chapter is published in:

Koch, U., Stout, S., Landon, B. & Phillips, R. (2016). From healthcare to health: A proposed pathway to population health. *The Journal of Delivery Science and Innovation, 4,* 291–297. doi: http://dx.doi.org/10.1016/j.hjdsi.2016.06.007

Abstract

Innovations in payment are encouraging clinical-community partnerships that address health determinants. However, little is known about how healthcare systems transform and partner to improve population health. We synthesized views of population health experts from nine organizations and illustrated the resulting model using examples from four health systems. The transformation requires a foundation of primary care, connectors and integrators that span the boundaries, sharing of goals among participants, aligned funding and incentives, and a supporting infrastructure, all leading to a virtuous cycle of collaboration. Policies are needed that will provide funding and incentives to encourage spread beyond early adopter organizations.

Disclaimer: The opinions of the interviewers are their own and do not necessarily reflect the views of their employers. The affiliations of the interviewers are included for identification only.

Acknowledgements: Funding was provided by the Harkness Fellowship Program (Ursula Koch). We thank the following interviewees for contributing their content expertise: Dr. Craig Jones (Executive Director, Blueprint for Health), Dr. Ted Eytan (Medical Director, Center for Total Health at Kaiser Permanente), Dr. Katherine Gottlieb (President and CEO, Southcentral Foundation), Dr. Soma Stout (Vice President for Patient Centered Medical Home Development, Cambridge Health Alliance), Dr. Linda Kinsinger (Director, National Center for Health Promotion and Disease Prevention at Veterans Health Administration), Dr. Ed Wagner (Director Emeritus, MacColl Center for Health Care Innovation), Dr. Trissa Torres (Senior Vice President, Institute for Healthcare Improvement), Ms. Hilary Heishman (Program Officer, Robert Wood Johnson Foundation), Dr. David Meyers (Chief Medical Officer, Agency for Healthcare Research and Quality), Dr. Charles Homer (Former President and CEO, National Institute for Children's Health Quality), Dr. Paul Wallace (Former Chair of Institute of Medicine Report on Primary Care and Public Health, Institute of Medicine), Dr. Lloyd Michener (Professor and Chairman, Duke University School of Medicine), Dr. Denise Koo (Advisor to the Associate Director for Policy, Centers for Disease Control and Prevention).

Introduction

The US has embarked on an ambitious payment and delivery reform agenda through the Affordable Care Act (ACA), with a focus on improving access to affordable health care and investment in primary care and population health (Conrad, Grembowski, Hernandez, Lau, & Marcus-Smith, 2014; Noble et al., 2014; Rosenbaum, 2011). In response, health care systems and public health agencies are beginning to design and implement new approaches to health that include clinical-community partnerships (Hacker & Walker, 2013; Institute of Medicine, 2012; Mitchell & Shortell, 2000; Shortell, 2013; Stevenson Rowan, Hogg, & Huston, 2007; Valentijn et al., 2015; Welton et al., 1997). Several "early adopter" healthcare systems have begun efforts to achieve improvements in health by addressing the social determinants of health, such as working and living conditions, and individual health behaviors by partnering with community services (Beaumont Foundation, Duke University, & Center for Disease Control and Prevention, 2014; Bellows, Young, & Chase, 2014; Bisognano & Kenney, 2012; Department of Vermont Health Access, 2014; Gottlieb, 2013; McCarthy & Klein, 2010). In this context, we sought to understand how key experts and pioneering health systems are working to improve these kind of population health partnerships among community organizations, public health, healthcare providers, and community members.

Our approach

We identified a convenience sample of nine key experts from thought-leading organizations who had expertise in population health and we conducted structured key informant interviews (Table 5).

Table 7: *Interviewed opinion leading' organizations*

Institute for Healthcare Improvement
National Institute for Children Healthcare Quality (NICHQ)
Institute of Medicine (IOM)
Agency for Health Research and Quality (AHRQ)
Community & Family Medicine, Duke University School of Medicine
Robert Wood Johnson Foundation (RWJF)
Veterans Health Administration, National Center for Health Promotion and Disease Prevention
Centers for Prevention and Disease Control (CDC)
MacColl Center for Healthcare Innovation

These were identified by reviewing the published literature and through expert recommendation. To guide our discussions with population health experts, we defined population health as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group."(Kindig & Stoddart, 2003, p. 381) The nine experts were interviewed to learn about how their organizations transformed to address population health and social determinants of health, and how they approached partnerships with community and public health agencies. From these interviews, we developed a theoretical framework for a transformation from healthcare to health through clinical-community partnerships and then interviewed leaders of four case studies organizations that are focusing on population health to test this framework.

We selected the four leading healthcare organizations as case studies through literature review and recommendations from the interviewed experts. In this way, we identified four leading healthcare organizations in the United States, which were developing approaches to implementing clinical-community partnerships as a way to improve population health. We intentionally chose health systems with varying characteristics in terms of patient

characteristics, organization size and ownership, approach to payment, number of payers, and degree of patient engagement. We highlighted the distinguishing characteristics of the four health systems in Table 6.

Table 8: *Characteristics of the four health systems case studies*

	South Central Foundation	**Vermont Blueprint for Health**	**Cambridge Health Alliance**	**Kaiser Permanente**
Vision	*A Native Community that enjoys physical, mental, emotional and spiritual wellness*	*Improving the health of the overall population, and improving control over health care costs by promoting health maintenance, prevention, and care coordination and management.*	*To improve the health of our communities*	*To provide high-quality, affordable health care services and to improve the health of our members and the communities we serve.* *To be the leader in Total Health by making lives better*
Distinguishing characteristics	Regional system designed and owned by the Customer; Community driven	State Initiative Healthcare & Payment Reform. Patient Centered Medical Homes supported by community health teams and a transformation infrastructure.	Integrated care delivery system that is part of an accountable care organization; runs the Public Health Department in Cambridge; has a Strategic 5-year-Plan to integrate with community and public health	Fully integrated system (with non-for profit Health Plan); technology supported Total Health Approach, including focus on "Health Behavior change."
Patient Population	65,000 native Alaskans, 55 villages 55,000 enrollees /customer-owners	Targeting all 620,000 citizens in 13 communities. To date 350,000 patients receive care in the medical home setting	101,000 predominantly public payer patients.	9.5 million KP members
Geographic region	Anchorage (Alaska) & remote villages	Vermont	7 cities (MA)	8 states & district of Colombia.

	South Central Foundation	Vermont Blueprint for Health	Cambridge Health Alliance	Kaiser Permanente
Employees **Total providers and staff**	App. 1,700 staff, including 40 leadership, 240 providers (MDs, NPs, PAs)	PCMH: 124 PCPs 644 CHT FTE: 133 SASH FTE: 60 Spoke FTE: 39 Providers: 876	Staff: 3300 employees, Providers: 350	Staff: 190,000 Providers: 17,000 physicians
Visits per year (outpatient)	261,574	1,280,149 primary care visits (3.7 per person).	675,000	36 Million
Payer	Multipayer	Multipayer	Multipayer	Single payer (health plan) to providers. Multipayer to health plan, including government, commercial groups and individuals.
Funding Institution	Congressional Act (Fund for Native American Indians)	The Department of Vermont Health Access Blueprint, all major payors in Vermont	Cambridge Health Alliance	Not for Profit Health Plan
Annual Budget	$290 million	Budget: $10,360,000 (program, staff; practice facilitators; workshops; evaluation, IT Infrastructure)	$600 million	$53 billion
Proportion of patients/customers under global budget of some kind or shared savings (2013)	50% block grant from the Indian Health Service); 45% Medicaid, Medicare & private insurers), 5% philanthropy & grants	69% clients receive their primary care in medical home and CHT setting. Large proportion of population in 3 shared savings programscommercial, Medicaid, medicare)	60% under global budget or shared savings; 40% FFS	Large majority of budget is prepaid capitation, with only a very small percentage fee-for-service.
Community investment	N/A	Community Health Teams: $1.50 PPPM for CHT staff (~6.2 million total). Grants to communities for transformation & self-management total: $2.4 million.	$7 million / year	$1.9 Billion/year
Payment of workforce	Salaried (all members of health System)	**Practices**: PMPM (1.20-$2.39 NCQA PCMH recognition score, in addition to FFS); **Community Health Teams**: $1.50 PPPM	**Staff:** Salaried **Providers:** Predominantly salaried with incentives	Salaried

Observations

Our interviews with population health experts suggested that efforts to improve population health often focus on strengthening clinical-community partnerships as a way to address health determinants. This collaboration between healthcare organizations leads to an incremental and sequential process of integration across levels and care settings, based on the health needs and resources of the community. The model (presented in *Figure 5*) includes the following building blocks: 1) organized primary care; 2) connectors of healthcare and community resources; 3) accountable integrators of information and resources that cross pre-existing boundaries; 4) multisectoral coalitions; 5) aligned resources (funding and incentives), and; 6) supportive infrastructure and culture. Below we elaborate on the model and use examples from analysis of the four organizations to provide evidence (see Table 7) that support this construct.

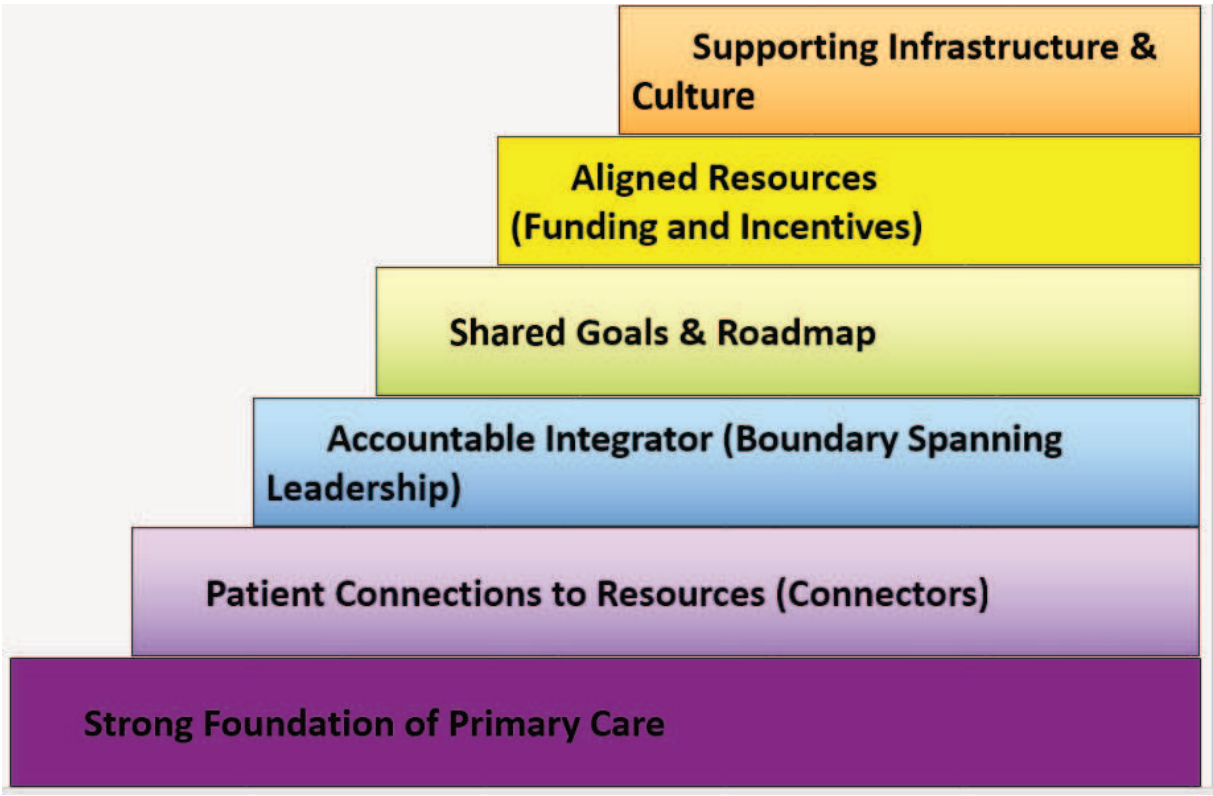

Figure 5: Building blocks for improving health through clinical-community partnerships

Building Blocks

1) Strong foundation of organized primary care

The first building block for clinical-community partnerships is organized primary care, usually along the lines of the medical home model. Practices that learn to work in teams, measure outcomes, share information, build a quality improvement culture and establish partnerships within their teams and with their patients, recognize that the empanelment of patients and the focus on complex care management is not enough and that to improve health further they need to address health behaviors and social and environmental determinants of health. To develop such a population-based approach for patients receiving primary care, primary care teams and their healthcare systems begin to look for ways to collaborate with community and public health systems.

2) Connectors between patients and community resources

Connectors link patients in the primary care system to community and public health resources. They enable primary care practices to leverage existing resources and infrastructure available within a community to address the social determinants of health. Organizations often test different connector-models depending on the availability of resources in the community, such as community health workers, social workers, health navigators, community resource specialists, promotoras, students or community health teams that include public health and medical care professionals.

3) Accountable integrators (boundary-spanning leadership)

Integrators are multi-stakeholder bodies, often led by boundary-spanning individuals or a specific organization with stakeholder buy-in, that assume clear decision-making capacity and accountability for improved health outcomes. The integrator role might vary based on

the needs and assets of the community or population, but must have sufficient authority to be accountable for achieving improved health outcomes and allocating resources.

4) Shared goals and roadmap

Multisectoral coalitions often start with a single issue (usually a single disease, such as diabetes or cardiovascular disease or a health condition such as tobacco or substance use) bringing together two or three partners based on the health needs of their patients or communities. Over time successful coalitions will co-create shared vision and goals, and finally a shared roadmap with mutual accountability. Each contributing organization needs to understand their role in the context of the roles of others, and to constantly integrate the patient and community perspective in redesigning population health.

5) Aligned resources (funding and incentives)

Organizations must align financial incentives with clinical transformation in order to support the goals of integration to achieve improved population health. Having a financial interest in keeping their patients healthy is crucial. These approaches can include global budgets with shared risk, bundled payments, waiver funds, non-profit hospital community benefits, community trusts, grants and/or demonstration projects, and payment reforms that require all payers to fund transformation. Further, these incentives might be directed to staff whose work leads to improvd population health, through changes to salaries or additional bonus for improved outcomes. Early successes lead systems to work to further align funding to support the development of a continuum of health and an infrastructure to sustain the work (e.g. accountable care organizations and health communities).

6) Supportive infrastructure and culture (e.g. data systems, metrics, process for improvement and culture change, and workforce training)

   To create and sustain the changes that are needed, organizations need to support infrastructure and to foster culture change and the development of new system properties and rules. They reorient their systems to support a culture of health and invest in workforce training and ongoing improvement, building leadership and professional development programs that help to teach new skills. In addition, systems recognize the need to address their customers' social and economic context and health behaviors and to embrace the community's role as a partner in the transformation. This recognition may result in leadership and staff education and training in new competencies (e.g. motivational interviewing techniques and health risk assessments to identify and address socioeconomic barriers), data systems to support an effective flow of information among health system and community partners, shared metrics based on common taxonomies, and processes to report and analyze the data to gain a deeper knowledge of the needs of the population. The development of a learning system with constant feedback loops is important in helping organizations to develop and adapt new processes as needed.

Discussion

We proposed a conceptual framework for healthcare systems to address population health through clinical-community partnerships which includes six key building blocks that lead to an incremental process of integration of services and resources (workforce, funding, and information) among healthcare organizations, public health agencies, and community organizations. Once the pathway of building blocks is completed, other shared health needs lead to the engagement of new stakeholders, planning and implementing the appropriate

strategies with outcomes and performance indicators and resources and constant monitoring with feedback loops (Plan-Do-Study-Act (PDSA) cycles)(Nadeem et al., 2013) that include the customer voice. Shared community vision emerges with a growing number of partners at the table. This continous cycle of collaboration strengthens relationships and promotes the process of integration across levels and care settings. The end result yields integrated health networks with shared responsibility, resources, and accountability (Kindig & Isham, 2014).

Our framework explains why transformation is so challenging. To encourage more healthcare systems to shift toward community linkages as a way to improve population health, we recommend policies that support a sequenced change strategy. For example, aligned funding and infrastructure are needed to encourage transformation. As one example of such a change, Kindig called for the development of a "pay-for-population health performance system that goes beyond medical care to include financial incentives for the equally essential nonmedical care determinants of population health" (Kindig, 2006, p. 2611). But this transformation also requires a profound culture change, which supports partnerships with communities, and shared values and respect for all parties who are helping to co-produce health. Additionally, to foster sustainable population health partnerships, evidence will be required to convince healthcare systems or payers that partnering with communities will produce value (improved health outcomes per unit cost) for their own patients or members. Resources for investment must be available for healthcare systems to transform, with the realization that this may require a shift of resources from healthcare to other sectors (Mitchell & Shortell, 2000). In addition, healthcare systems may need to become an accepted part of community-public health networks to have a meaningful role in improving health (Eggleston & Finkelstein, 2014). Our model also highlights the need for a strong primary care foundation as a prerequisite for clinical-community partnerships. If we are to encourage more organizations to address population health, our primary care system will need to be strengthened (Taggart et al., 2012; Whitlock, Orleans, Pender, & Allan, 2002). With current resources, primary care practices often are unable to fully

support population health due to low reimbursement overall, and little or no support for lifestyle change and care management (Fazalullasha et al., 2014; Yarnall, Pollak, Ostbye, Krause, & Michener, 2003). Since most primary care practices are not designed to offer intensive health counseling as a regular service, it isimportant to leverage existing civic infrastructure and integrate services within organizations and workflows.

Several approaches are being taken to align payment with improved health outcomes. For example, accountable care organizations (ACOs) can provide an incentive for healthcare systems to collaborate with communities (Magnan et al., 2012). However, if ACOs fail to create shared goals and accountability with their communities, we may see little change in how decisions are made or how funds are spent (Fox, 2010). The historic power differential between healthcare systems and communities could even be exacerbated, creating new conflicts. An integrated board with co-created and shared goals between the community and healthcare systems are an important path forwards for systems that wish to focus on community needs.

Access to data is a challenge in much of healthcare, but even more challenging in improving population health. Data resources that measure social determinants of health and health outcomes are minimal at best (Harrison & Dean, 2011; Sheikh, Sood, & Bates, 2015). As an example, Healthy People 2020 contains information on social determinants and, for the first time, includes relevant indicators and objectives, but these data are not easily available in ways that can be linked at the individual level (Office of Disease Prevention and Health Promotion, 2014). If data-driven work and decisions are based on clinical outcomes and not on overall health outcomes, including social determinants, important opportunities will be missed. Patient-reported data about their social circumstances and health status need to be linked to clinical and administrative data to drive improvement.

Finally, the US may be able to learn from population health approaches in Western European countries. The strong social care systems of European countries such as Switzerland or Sweden and the long tradition of mandatory health insurance allows those countries to focus

more strongly on health behavior change and optimization of the collaboration among service providers. Communities are usually equipped with adequate infrastructure to meet social needs. Several European models demonstrate successful integration among healthcare, community, and social services, such as the Community Health Partnerships in Scotland (Pate, Fischbacher, & Mackinnon, 2010), the "gesundes Kienzigtal" in Germany (Hildebrandt et al., 2010; Hildebrandt et al., 2015), the integration of social and health care in the UK (Hawkes, 2013), or in Jönköping County Council, Sweden (Andersson-Gare & Neuhauser, 2007). In Switzerland, integration of social and health care is being applied to care for residents with addiction (Bundesamt für Gesundheit, 2006; Uchtenhagen, 2010) International examples also suggest that addressing social issues may help to reduce healthcare costs and to improve the health of the population (Bradley et al., 2011; Bradley & Taylor, 2013), a combination of outcomes that are sorely needed in the United States.

Table 9: *Examples of the four health systems for the Building Blocks*

Building Blocks	South Central Foundation (SCF)	Vermont Blueprint for Health (BH)	Cambridge Health Alliance (CHA)	Kaiser Permanente (KP)
Organized primary care	*SCF rebuild their whole healthcare system based on primary care teams with behavioral health and traditional medicine integration.*	*Blueprint for Health (BH) combined a delivery reform with payment reform to foster Patient-Center Medical Homes in all 14 communities.*	*CHA used the Patient Centered Medical Home principles as a foundation for transformation to become an accountable care organization. They focused on "planned care" that included reaching out to patients who were overdue for screening or chronic disease management.*	*Kaiser Permanante's (KP) early focus on a strong primary care foundation served as a model for medical home development in the U.S. KP also implemented an advanced population care management approach for people with chronic diseases.*
Connectors	*SCF engaged social workers and community health workers to connect primary care teams and their patients to community resources.*	*BH created multidisciplinary community health teams that connect to community resources and social support. These teams include nurse coordinators; social workers; nutritionists; care coordinators; community health workers; and public health or prevention specialists who used community risk profiles to build consensus among stakeholders on needed interventions. They added self-management programs to help patients adopt healthier lifestyles and engage in preventive health services.*	*CHA used planned care coordinators, who often were young college graduates from the community, to coordinate outreach. They also provided connecting services, through the primary care team, volunteer health advisers, community resource coordinators, community health workers, primatoras or the program "Health Leads"* [8]	*KP tested different connector-models depending on the region and availability of resources in the community.* *Examples: Promotora Program (California); Health Leads (Northern California); navigator program (Colorado, Northwest and northern California) and use of community healthworkers.*
Accountable Integrator (Boundary-spanning Leadership)	*SCF is a healthcare system and integrator that manages native Alaskan healthcare.* *The SCF coalition integrates across local, regional and national partners, with shared*	*As an accountable integrating organization, BH (Department of Health) brings together state government, health insurance plans, business and community leaders, health care providers, and consumers. All key stakeholders are represented*	*CHA acts as an integrator based on their resources as an integrated health system that includes community hospitals and specialty practice, community-based health centers, and school-based clinics and their role as leader of the public*	*KP assumed the role of a fully integrated and accountable health system; as an initiating, connecting body; as a facilitator of integration through funding as part of the community benefit mandate (e.g. stewardship for healthy communities;*

[8] https://healthleadsusa.org/location/boston/

Building Blocks	South Central Foundation (SCF)	Vermont Blueprint for Health (BH)	Cambridge Health Alliance (CHA)	Kaiser Permanente (KP)
	responsibility, operational principles, core concepts and a board of directors. *SCF assumed the responsibility for operating and managing town healthcare for native Alaskan peoples.*	*on an executive committee ("green mountain board"), which assumes accountability for improved outcomes.* *BH assumed a role as an organizing body and change agent, and provided practice facilitation, project management, data integration and program evaluation*	*health department in Cambridge. They work with community partners through its Community Health Advisory Council.*	*investing in healthy environment (bike paths), and enabled platforms for exchange & improvement* *For example, in Pueblo, Colorado they initiated a multi-stakeholder collaborative (Pueblo Triple Aim Coalition) that includes government, and health plans to support a comprehensive health network*[9]
Shared goals & Roadmap	*SCF worked with its community of customer-owners and tribal leaders to create a shared vision and goals as well as building relationships across the whole organization. When the community identified child sexual abuse, child neglect and family violence as their top priorities, SCF addressed these problems in partnership with tribal leaders through a culturally-based Family Wellness Warriors initiative.*	*BH started as a multi-stakeholder working group focused on chronic illness inspired by the Chronic Care Model and evolved into a comprehensive health delivery system reform launched as a Governor's initiative (2003) that implemented the shared vision and roadmap of "Blueprint of Health" into statute. Milestones included: reform legislation (Act 191) (2005); establishing 2007 Blueprint leadership and pilots and Community Health Team structure and insurer mandate (2008), followed by a statewide Blueprint Expansion and planning for single payer (2011) and unified community health system (2014).*	*CHA started a smoking cessation initiative with schools, housing authorities, and hospitals. After achieving positive results (e.g. asthma reduction), the growing "multisectoral coalition" decided to develop a shared 3-year plan together with their Community Health Advisory Council to further transform into community centered health homes and is working with community and public health partners to identify priority areas for health system integration, such as access, mental health integration, and substance abuse prevention and treatment, and the health of the elderly.*	*KP's overall goal is to promote total health. They partner with communities and develop shared goals based on community assessments. As an example, in Pueblo (Colorado) they used the "Re-Think" tool to bring all partners together and to support the development of shared goals and strategies.*[10]
Aligned resources (Funding and incentives)	*SCF resources are based on the Fund for Native American Indians through the congressional act. They use*	*BH includes two state-based payment reforms that include all payers and aligned reimbursement and purchasing, requiring all payers to*	*CHA transformed into an accountable care organization and sought Medicaid waiver transformation funding. (Appr. 40% of its patients*	*KP is a non-profit health plan. Their population approach to care management combined with capitation payment was aligned with payment*

[9] http://www.pueblotripleaim.org/
[10] http://www.rethinkhealth.org/case-studies/setting-strategy/

Building Blocks	South Central Foundation (SCF)	Vermont Blueprint for Health (BH)	Cambridge Health Alliance (CHA)	Kaiser Permanente (KP)
	supplemental funding (45%) from the Indian Health Service (IHS) as a global budget and supplemented this with fee-for-service payments for patients not included in the IHS payments. They pay their physicians and staff salaries and implemented rigorous performance metrics that are shared publicly in accord with their key value of transparency	*fund PCMH transformation and community health teams as a shared cost. Additional funding is provided at the state level for project management, practice facilitation, self-management workshops (grants) and clinical registry, data quality and evaluation (contracts). They also provided financial incentives for staff to improve performance based on a set of standards.*	*were in some form of a global payment arrangement, and an additional 20% were in a shared savings plan). They further changed their compensation plan for primary care clinicians and specialists to a largely salaried structure with additional incentives for performance as a group on the health of the population in key areas, aligned with their balanced scorecard (e.g. items such as "helping people to stop smoking").*	*incentives to providers to keep their clients healthy. They invest 3% of its annual budget in community benefits. They pay salaries with a bonus based on improved population health outcomes.*
Supportive infrastructure and culture	*SCF reoriented their whole system to create a culture of person and customer-owned care, by changing their mission, rules, principles and workforce. They changed hiring practices, and created mentoring and professional development plans for every employee.*	*BH includes all of its 14 communities in a Learning Collaborative with ownership over design and implementation of the overall model at the local level. To support this, they developed a comprehensive community-wide information exchange to provide participating communities with real-time electronic information, guideline-based care, population management and comparative evaluation to support ongoing improvement. Continuous monitoring and a multi-faceted evaluation system evaluate the success of health care reform.*	*CHA integrated a fully implemented electronic medical record with data analytic capability and created a new balanced scorecard with metrics based on population health priorities. They invested in workforce development, creating trainings for leaders and for frontline staff that empowered them to meet community needs. At every visit, they conduct a comprehensive health needs assessment of their patients, guided by clinical decision support.*	*KP developed a total health approach to promote wellness of the body, mind, and spirit of their members. They assess members' health behaviors and social determinants of health. A behavior change framework provides self-management programs and health coaching for behavior change. They support communities based on the results of a community needs assessment. They built a strong learning system with constant quality improvement across regions, based on a health information exchange system to support outcomes measurement and data exchange with external partners and use a national database for their "national navigation program" (e.g. social services, food, child care, housing, eligibility for public programs).*

CHAPTER IV

The Mental Health of Female Sex Workers

Wulf Rössler, Ursula Koch, Christoph Lauber; Anne-Kathrin Hass, Marion Altwegg, Vladeta Ajdacic-Gross, Karin Landolt

A similar version of this chapter was published in:

Wulf, R. Koch, U., Lauber, C., Hass, AK., Altwegg, M., Ajdacic-Gross, V. & Landolt, K. (2010). The mental health of female sex workers. *Acta Psychiatrica Scandinava, 122*, 143-152.

Abstract

Objective: There is limited information available about the mental health of female sex workers. Therefore, we aimed to make a comprehensive assessment of the mental status of female sex workers over different outdoors and indoors work settings and nationalities.

Method: As the prerequisites of a probability sampling were not given, a quota-sampling strategy was the best possible alternative. Sex workers were contacted at different locations in the city of Zürich.

They were interviewed with a computerized version of the World Health Organization Composite International Diagnostic Interview. Additional information was assessed in a structured face-to-face interview.

Results: The 193 interviewed female sex workers displayed high rates of mental disorders. These mental disorders were related to violence and the subjectively perceived burden of sex work.

Conclusions: Sex work is a major public health problem. It has many faces, but ill mental health of sex workers is primarily related to different forms of violence.

Declaration of interest: This research was financially supported by the Swiss Federal Bureau of Health and by the Zürich City Department for Social Affairs

Significant outcomes:

- We found high rates of mental disorders among female sex workers. In particular 1-year prevalence rates were high what points to the immediate burden associated with sex work.
- It is essential to consider the heterogeneity of female sex work. Work setting and nationality characterize different groups of sex workers concerning rates of mental disorders.
- As has been shown by other studies, female sex workers frequently are exposed to high levels of violence. Violence proved to be an important correlate of mental disorders.

Limitations:

- Women who were forced to sex work and women who were working illegally were probably underrepresented in our study.
- The DIA-X does not assess adjustment disorders and personality disorders, which might be quite prevalent in female sex workers.
- As our study was cross-sectional, we were not able to discuss the issue of causality, e.g. if mental disorders precede sex work or are a consequence thereof.

Introduction

Women experience higher rates of depression and anxiety in the general population (Angst et al., 2005). Some researchers linked increased anxiety or depression rates of women to health damaging psychosocial factors like high job demands and low decision latitude in work (Lennon, 1995; R. B. Williams et al., 1997).

As a marginalized group, sex workers are normally expected to experience poorer health than comparable age groups of the general population. But because of the quasi-legal or illegal and stigmatizing character of sex work, sex workers do not fit into the public health framework of occupational health (Jones, 2007), although there is a growing demand for sex work. In the United Kingdom, for example, the proportion of men who reported paying for sex doubled in the decade from 1990 to 2000 (H. Ward et al., 2005).

Given that public health is more concerned with the health of customers of sex workers, public health actions almost exclusively focus on risks associated with transmittable infectious diseases like HIV/AIDS rather than on health questions in general or in particular on the mental health consequences of sex work. But across all topics, articles expressing opinions or stereotypes about sex work seem to outweigh research articles (Day & Ward, 2007). Rigorous research is therefore needed to understand the precise context of sex work (Brooks-Gordon, 2008).

Studies dealing with the mental health of female sex workers are rare (Romans et al., 2001). The few available studies either concentrate on certain disorders like posttraumatic stress disorders (Farley et al., 2004; Roxburgh, Degenhardt, & Copeland, 2006) or drug use (Love, 2015), assess psychological constructs, (Boyle et al., 1997) deal exclusively with selected work settings like outdoors sex work (Jeal, Salisbury, & Turner, 2008), or are predominantly

concerned with violence by customers towards female sex workers (Church, Henderson, Barnard, & Hart, 2001) or youth sex work (Cusick, 2002).

Aims of the study

Our study aims to make a standardized assessment of the mental health of female sex workers over different work settings and nationalities and identify correlates of their potentially ill mental health. We aim to compare rates of mental disorders in adult female sex workers to the rates in female subjects of the general population as assessed in epidemiological studies. Moreover, we examine the association of ill mental health of adult female sex workers with their working conditions and with other factors, such as nationality and social support.

Methods

Participants

According to the Zürich Police Department, 3581 sex workers were registered in the city in 2004 and 3990 in 2005 [excerpt from the City Council Meeting (GR Nr. 2005/314)]. These are approximate numbers because of an unknown number of illegal sex workers in the city. According to the Police Department the estimated number of illegal sex workers was around 500 persons in 2005. Many of the illegal sex workers come with a tourist visa and stay for only two or three months. Furthermore, there are other reasons for illegal sex work ranging from being forced to offer sex services (mostly women with a foreign nationality) to being underage. Finally, there is an unknown number of registered sex workers who no longer work as sex workers.

For those reasons the prerequisites of drawing a random sample were not given. A non-proportional quota-sampling approach was the best possible alternative. In this method, the major characteristics of a population are specified as sampling categories. The size of each category does not necessarily match the proportions in the population, but should assure that smaller groups are adequately represented in the sample. Categories chosen as risk factors for ill mental health were «setting of sex work» and «nationality» (Swiss, Europeans and non-Europeans). For legal reasons we did not include female sex workers under the age of 16.

To secure a broad participation as possible, we directly contacted female sex workers in different locations, namely outdoors, in studios, bars, cabarets, parlours, brothels and escort services. We also distributed flyers in these locations to campaign for the study. On the other hand, we asked the respective information and facilitation centres for sex workers and services for the homeless for assistance in recruiting the participants of the study. With respect to escort services we also answered the respective sex work newspaper or internet contact advertisement. Finally, we contacted all female students at the University via mail with the permission of the Legal Department of the University and asked for their participation in case they are engaged with sex work. We communicated at all occasions that we would conduct the interviews in German, Spanish, Portuguese or English. Informed written consent was necessary to participate in this study. The participants received a lump compensation for their expenditures. The Local Ethic Committee approved the study.

Instruments

We assessed the mental health status of the sex workers with the WHO Composite International Diagnostic Interview (M-CIDI 2.1). The fully standardized CIDI is a computerized interview developed by the World Health Organization (WHO) for use in epidemiological surveys and available in several languages. In our study we used the German version of the CIDI 2.1, DIA-X (Wittchen HU, 1997). The CIDI enables trained non-clinicians to assess lifetime and current

symptoms, syndromes and diagnoses of various mental disorders in accordance with the definitions and criteria of DSM-IV (Wittchen, Lachner, Wunderlich, & Pfister, 1998). The CIDI has been used worldwide in numerous epidemiological studies and has also been explored psychometrically in a large number of studies. The inter-rater reliability of the CIDI was found to be excellent (Wittchen et al., 1998). The three female interviewers of our study (all clinical psychologists or psychiatrists) were trained for the CIDI interview by a WHO authorized trainer.

Socio-demographical data, questions regarding working conditions (income, expenditures, number of working days and of customers per week) and motivation for sex work were assessed in a structured interview. Subjectively experienced burden associated with sex work was measured by 15 questions which were summed up to one scale (alpha = 0.85) representing the overall burden associated with sex work. We excluded the question «To what extent are you affected by illegality, fear of being caught by the police? » from the scale to enhance internal consistency. Two items measuring stigma were summed up to one scale (alpha = 0.86). The total face-to-face interview took 90–120 min. The interviews were conducted in 2004 and 2005.

Statistical analysis

The DSM-IV diagnoses were calculated automatically by the computerized DIA-X interview.

Before conducting cluster analyses, associated variables were determined using logistic regressions. Dependent variable was the 1-year prevalence rate to ensure that analyses refer to the current state of the mental health of sex workers. Logistic regressions were calculated with spss 13.0 for Windows. Variables with more than five missing cases were excluded a priori. Also the inclusion of highly correlated items measuring nearly similar aspects was avoided. Cluster analysis aims to differentiate mutually exclusive groups of respondents characterized by similar patterns of scores on several variables. Latent cluster analysis postulates an

underlying latent variable that is responsible for the clusters, and is suited for categorical data. Latent Gold 4.5 (Statistical Innovations Inc., Belmont, MA, USA) allows for mixed model cluster solutions (26). To account for sparse data, the model fit was tested using the bootstrapping algorithm of Latent Gold 4.5. To select the appropriate number of clusters the Baiesian Information Criterion (BIC) was used.

In logistic regressions and cluster analyses, cases with missing values were excluded (listwise deletion). Per cent indicated in text and tables are always calculated based on all non-missing observations. Varying denominators may therefore lead to small inconsistencies. Confidence intervals (CI) for proportions were calculated according to the Adjusted Wald method (27), as the number of positive cases was small for several diagnoses.

Results

Interviews were conducted with 193 female sex workers. This is an approximation of 5% of all registered female sex workers in the city of Zürich. The age of the interviewed women ranged from 18 to 63 years and the mean age was 32.1 years (Table 9). The majority were Swiss born persons (53.4%), and two thirds of the sample possessed a Swiss passport (62.2%).

Two thirds of the women had a typical school education for their respective country, only a minority had no school education at all (Table 8). Of the women living in a partnership, 80.0% had informed their partners about their profession and 12.0% shared their income from sex work with their partners. Of the women having own children, 80.6% concealed their occupation towards them.

Table 10: *Socio-demographic data of the female sex workers and indicators of social integration*

	Percent/Mean (Range)	N
Age (mean)	32.1 (18-63)	193
Nationality		193
Swiss	53.4	103
West European	18.1	35
East European	9.3	18
Latin American	13.5	26
Asian	4.7	9
African	1.0	2
Residence permit		193
Swiss passport	62.2	120
Permanent residence permit	16.1	31
Residence permit 5 years	11.4	22
Short term residence permit	4.1	8
"Sans papiers"	2.6	5
Tourist	2.1	4
Education		193
Typical	63.2	122
Higher school diploma	15.5	30
University training	5.7	11
No school education	6.7	13
Partner		193
Yes	51.8	100
Children		192
Yes	37.3	72
Supported by family		193
Yes	77.7	150
Someone to thrust		193
Yes	74.1	143
Felt excluded by circle of acquaintances		193
Sometimes or more	58.5	113
Felt excluded by society		193
Sometimes or more	61.7	119

Social support

The majority of the women had either a person to trust or felt supported by the family. More than half of the sex workers felt at least sometimes excluded from their circle of acquaintances because of their profession, and as many felt excluded from society (Table 8).

Reasons for doing sex work

Many reasons for doing sex work were reported. Near to 40% of the women declared to like their work. Other prominent reasons were not being able to find another job, the need to give financial support to families, paying debts and buying drugs (*Figure 6*). Out of the sample of our study, only 1.6% actually stated to be forced to do sex work (*Figure 6*), while 10.9% of the female sex workers announced that they previously had been forced to do sex work. Some women (4.1%) had been deceived about the kind of work they were supposed to do (mainly when they came from abroad). Of the female sex workers with a foreign nationality, 1.9% had to pay up to 19'000 Euro to an agent as commission.

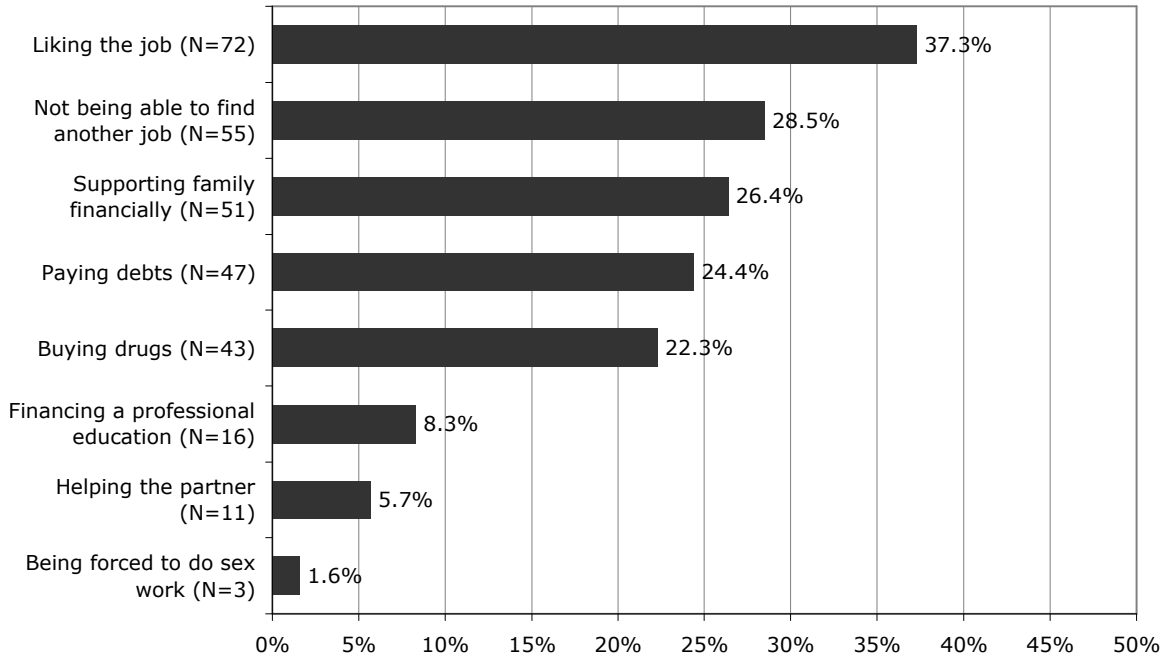

Figure 6: Reasons for doing sex work indicated by the interviewed women.

Bars represent percent of women who gave positive answers ("yes"). Multiple answers were possible. N =193, except for "liking the job" N = 191.

Work setting and working conditions

The interviewed women started to work in the sex business on average at the age of 24 (Table 6). More than one third (36.8%) worked at more than one location. Nearly one third offered their services outdoors (street or car) (Table 9). Of the women offering their services outdoors, 25.3% did so for the provision of drugs.

The interviewed women work on average more than 4 days per week. They serve on average 13.5 customers weekly or on a yearly basis, 702 customers. Extrapolating this number on the basis of the number of registered sex workers, there were roughly between 2.5 million (in 2004) and 2.8 million (in 2005) occasions per year that men chose the services of female sex workers in the city of Zürich. The average income of more than 1000 Euro per week was comparably high compared with the average monthly income of 3600 Euro of Swiss and foreign residents in 2004 (Swiss Federal Statistical Office). But only one-third of the sex workers could dispose of the full amount, and one third had only up to 60% of the full amount at one's disposal.

Table 11: *Work setting and working conditions*

	Percent/Mean (Range)	N
Age at first sex work (mean)	23.9 (12-52)	193
Working days per week (mean)	4.3 (1-7)	191
Customers per week (mean)	13.5 (1-60)	186
Income in euro (mean)	1172 (93-6262)	180
Percent of income at own disposal (mean)	76.5 (0-100)	179
Workplace		
Studio		193
Yes	38.3	74
Parlour		193
Yes	31.6	61
Brothel		193
Yes	4.7	9
Cabaret		193
Yes	3.1	6
Escort service		193
Yes	20.7	40
Street		193
Yes	25.4	49
Car (own or of customers)		193
Yes	23.8	46
Wish to quit		193
Yes	55.4	107
Violence in red-light milieu		
Rape	19.7	193
Yes		38
Pressure	31.4	191
Yes		60
Violence	25.9	193
Yes		50
Violence out of red-light milieu		
Rape		193
Yes	30.6	59
Pressure		191
Yes	27.2	52
Violence		193
Yes	40.4	78

Negative and positive aspects of sex work

Negative aspects the women mostly mentioned were (answers: “strongly affected” and “very strongly affected”) being financially dependent (46.6%), fear of infection (44.6%), leading a double life (40.4%), problems with intimate relationships (40.9%), customers’ demands (35.2%), sexual problems (33.7%), sex work *per se* (33.8%), shame and feelings of guilt (30.7%) or working conditions (30.5%). Positive aspects were money (97.9%), being independent (60.6%), being able “to help others” (38.9%), to arrange something according to one’s owns ideas (36.8%), more self-confidence (34.7%), and “power” (31.6%). Multiple answers were possible.

Rates of mental disorders

Rates of mental disorders are depicted in Table 10. Lifetime prevalence rates as well as one-year prevalence rates are indicated. The ratio of one-year-prevalence to lifetime prevalence is nearly 1:1 in the sample of sex workers.

Table 12: *Diagnoses of different psychiatric disorders, comparison of one-year and lifetime prevalence in the assessed sex workers (Total N=193).*

	One-year-prevalence		**Lifetime-prevalence**	
	Percent	N	Percent	N
All Disorders	50.3	97	63.2	122
Schizophrenia	0	0	0	0
Mood Disorders	30.1	58	41.5	80
Major Depression	24.4	47	36.3	70
Dysthymia	11.9	23	12.4	24
Bipolar Disorders	0.5	1	0.5	1
Anxiety Disorders	33.7	65	34.2	66
Generalized Anxiety	5.2	10	7.3	14
Panic Disorder	8.8	17	11.4	22
Simple Phobia	17.6	34	18.7	36
Social Phobia	7.3	14	7.3	14
Agoraphobia without panic	2.1	4	3.1	6
Anxiety Disorder NOS*	1.0	2	2.1	4
Obsessive Compulsive	2.1	4	2.1	4
Eating Disorders	5.2	10	8.8	17
PTSD	13.0	25	21.2	41
Somatoform Disorders	10.4	20	11.4	22
Alcohol Dependency	0	0	0.5	1
Psychotic Disorder GMC**	1.0	2	2.6	5
Anxiety Disorder GMC	0.5	1	0.5	1
No diagnosis	49.7	96	36.8	71

*not otherwise specified
**due to general medical condition

Logistic regressions

Logistic regression analyses identified the following correlates of 1-year prevalence rates of mental disorders: cultural background, work setting, subjectively perceived and objectively experienced burden associated with sex work and subjectively perceived social support (Table 11).

Table 13: *Bivariate logistic regressions for different covariates (independent variables) of diagnosis of any psychiatric disorder (dependent variable) in the past 12 months assessed by the CIDI in female sex workers (Total N=193).*

	N (yes/no)	OR	95% CI	P
Age	193	.99	.95-1.02	.380
Residence permit	193			
Swiss passport	120	-	-	.874
Permanent residence permit	31	1.26	.57-2.77	.574
Residence permit 5 years	22	1.24	.50-3.09	.643
Other	20	.85	.33-2.19	.730
Education	193			
Typical	122	-	-	.129
Other	17	.27	.07-1.04	.056
High school/University training	41	.38	.09-1.60	.189
No school education	13	.16	.03-83	**.029**
Nationality	193			
Switzerland	103	-	-	**.001**
Western Europe	35	.55	.25-1.23	.146
Eastern Europe	18	.53	.19-1.52	.238
Other countries	37	3.84	1.61-9.20	**.003**
Partner (193, yes)	193 (100/93)	.90	.51-1.59	.717
Children (192, yes)	192 (72/120)	1.20	.67-2.15	.551
No one to thrust (193, yes)	193 (143/50)	2.13	1.10-4.15	**.025**
Supported by family (193, yes)	192 (93/150)	.23	.10-.49	**.000**
Felt excluded by acquaintances (193)				
Sometimes or more	193 (113/80)	3.20	1.76-5.82	**.000**
Felt excluded by society (193)				
Sometimes or more	193 (119/74)	3.65	1.97-6.75	**.000**
Age at first sex work (193)	193	1.00	.96-1.04	.922
Working days per week (191)	191	1.25	1.04-1.50	**.016**
Customers per week (186)	186	1.04	1.01-1.07	**.022**
Income (180)	180	1.00	1.00-1.00	.326
Percent of income at own disposal (179)	179	1.01	.99-1.02	.405
Auxiliary income (193, yes)	193 (57/136)	.37	.20-.71	**.003**

	N (yes/no)	OR	95% CI	P
Workplace				
Street / car	193 (74/119)	.90	.50-1.61	.724
Brothel / salon / cabaret	193 (66/127)	1.08	.60-1.96	.801
Escort service / hotel	193 (45/148)	1.05	.54-2.04	.896
Studio	193 (59/134)	1.39	.75-2.57	.296
Violence				
Pressure in red-light milieu (191)	191 (60/131)	1.23	.67-2.28	.502
Violence in red-light milieu (193)	193 (50/143)	3.05	1.53-6.07	**.002**
Rape in red-light milieu (193)	193 (38/155)	2.22	1.06-4.65	**.035**
Pressure out of red-light milieu (191)	191 (52/193)	1.40	.74-2.65	.309
Violence out of red-light milieu (193)	193 (78/115)	1.51	.85-2.70	.160
Rape out of red-light milieu (193)	193 (59/134)	2.07	1.11-3.89	**.023**
Burden by sex work (193)				
Sum score	193	6.41	3.44-11.94	**.000**

Cluster analyses

Cluster analyses built on the relevant explaining variables selected by logistic regressions. As most women worked in more than one setting, variables on work setting were included in cluster analysis despite bivariate non-significance. We choose the variable “sex work as auxiliary income” to represent workload because of the lowest number of missing values. Moreover, the more easily interpretable variable «someone to thrust» was preferred over the more significant variable « supported by the family », as both variables had the same effect in the cluster model. Significant variables representing more general constructs as stigmatization were not included in cluster analyses. Following the BIC criterion, a solution with four clusters was the most parsimonious. The first cluster (n = 66) encompasses mostly Swiss fulltime sex workers working outdoors. They experience more violence and rape outside of the redlight milieu than in the milieu itself. The second cluster (n = 53) comprises women working in brothels, salons, or cabarets. They are of unspecific cultural background, mostly work full time, and do not experience much violence from sex work itself. Women of the third cluster (n = 42) are of

mixed European origin, work mostly in studios, and experience little burden by sex work. The fourth cluster (n = 30) consists of mostly non-European women working mainly in studios. They experience the highest violence in the milieu and the highest burden (*Figure 7*).

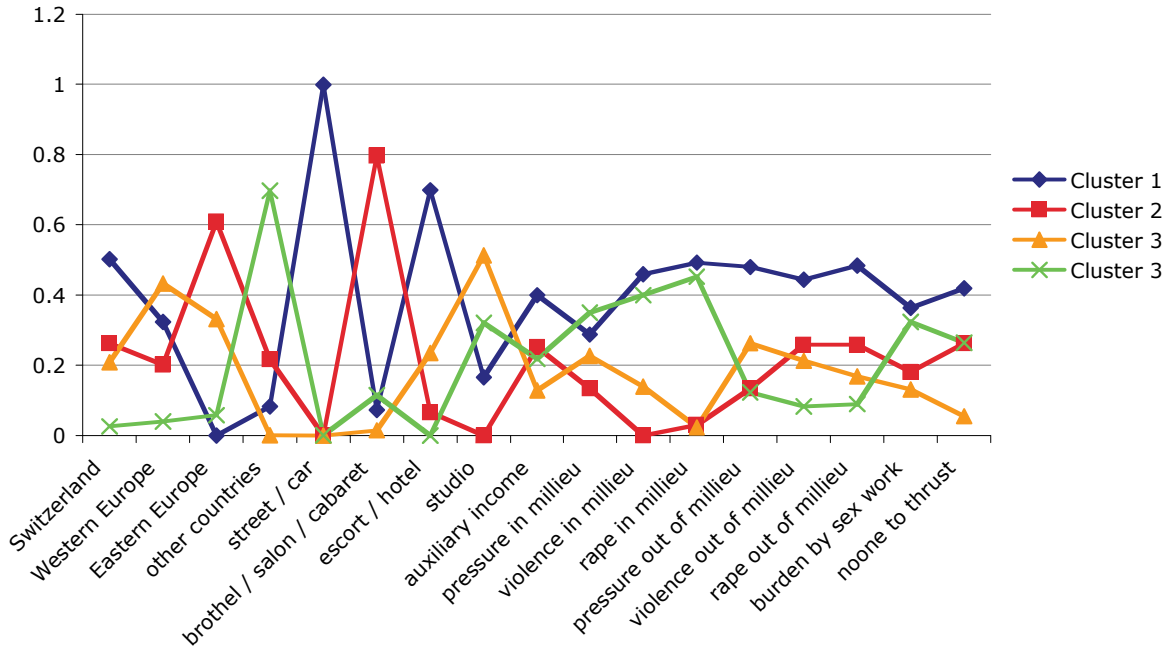

Figure 7: Cluster solution of selected explaining variables.
Lines represent (partial) conditional probabilities that show how the clusters/factor levels/classes are related to the indicator variables. The probabilities within each cluster sum to 1. N (total) = 191. N (Cluster 1) = 66, N (Cluster 2) = 53, N (Cluster 3) = 42, N (Cluster 4) = 30.

The four clusters differ concerning the rates of mental disorders. Cluster 4 displays the highest rates of all diagnoses (90.0%), anxiety disorders (73.3%), depression (46.7%) and PTSD (40.0%) (*Figure 8*). Depression is also quite salient in cluster 1 (45.5%), which encompasses women working outdoors. Cluster 3 represents relatively healthy women. In this group, depression is the most frequent disorder (9.5%).

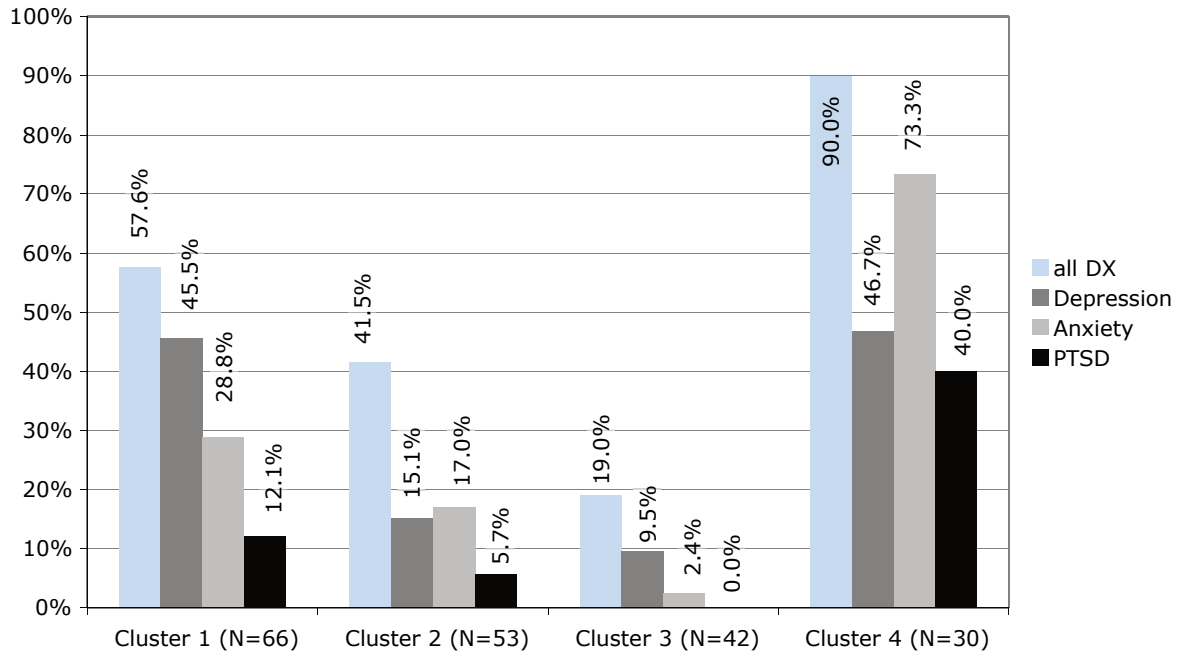

Figure 8: Percent of psychiatric diagnoses
Percent of all one-year diagnoses, all one-year depression diagnoses, all one-year anxiety diagnoses and all one-year diagnoses of PTSD in different groups of sex workers identified by cluster solution (total N=191).

Discussion

To the best of our knowledge this is the biggest sample of female sex workers, which has been assessed with a structured interview concerning mental health in a diversity of work settings and over different nationalities. As it is not possible to draw a random sample from such an open, mobile and at its borders vaguely defined group, the chosen sampling procedure comes the closest to a representative sample.

Strengths and limitations

One of the limitations of the study is the presumed under-representation of illegal female sex workers. The per cent of illegal sex work from the total number is probably around 10–12%. We assume that we assessed a rate of illegal sex work around 5% just including the women

who counted to the group of «sans papiers» or women who are offering their services with a tourist visa. This refers in the first place to women from Eastern Europe whose number has increased rapidly during the last years. Moreover, we failed to reach women who did not speak any of the interview languages, among others women from Eastern Europe, Africa and Asia. For legal reasons we also did not include women under the age of 16 years. But as none of the participating sex workers was under 18 years, our study only refers to adult female sex workers. Last but not least, we did not have access to female sex workers who are forced in a strict sense to do sex work. Thus, the extent of violence experienced by some of these women is presumably underestimated. For all those reasons our study is not representative insofar as the participants do not exactly mirror the composition of the total group of female sex workers. But the broad range of sex workers included gives a good picture of sex work in different work settings and the burden associated with sex work. The study also allows the conclusion that there is a clear relationship between the mental health of sex workers and their working conditions.

Heterogeneity as a main characteristic

Female sex workers are not a homogenous group. The age range is remarkable as well the range at what age these women had started with sex work. But in principle these women are not uneducated. Two thirds have a typical school education for their respective country and about 6% even a university training. They come from different (cultural) backgrounds and offer sex services for different reasons. It is self-evident that financial reasons for sex work are most prominent. But surprisingly near to 40% indicate that they like this kind of work. About one third of the women are offering sex services for altruistic reasons, as they want to help. Thus, sex work obviously also serves very personal reasons; sex work can enhance self-esteem, allow the person to be their own master or give a feeling of power. However, there is also a considerable proportion of sex workers who did not choose this job voluntarily. Only few were directly forced into sex work. But there are other ways to force the women into sex work:

coming mostly from abroad, they were deceived about the nature of their work they were coming for or they were put in debt thus creating an artificial dependency.

Nationality and work setting characterize different groups

A logistic regression and subsequently a cluster analysis allowed us to identify the most prevalent correlates with ill mental health and to group the sex workers in different "risk" cluster. The group of female sex workers can be divided in four clusters, being active in different settings and from different nationalities. The third relevant variable characterizing the various cluster, is the violence experienced by those women in and apart from the setting they work in. As such (European) female sex workers from escort services with a few clients per week are hard to compare with (mostly Swiss) female sex workers who work outdoors serving dozens of clients during a week with the objective to secure the provision of drugs. But obviously the most burdened group includes predominantly women from non-European countries who experience violence in and apart from their sex work setting.

High rates of mental disorders among sex workers

How should we classify the high rates of mental disorders among female sex workers? Compared with rates of women from the European ESEMeD Study (28) using CIDI 3.0 [1-year prevalence any disorder: 12.0% (95% CI: 11.2–12.8), mood disorders: 5.6% (95% CI: 5.1–6.1), anxiety disorders: 8.7% (95% CI: 8.0–9.4)] the rates found in our study [1-year prevalence any disorder: 50.3% (43.3–57.2); mood disorders: 30.1% (24.0–36.9); anxiety disorders: 33.7% (27.4–40.6)] are very high. Also the only Swiss population study (29) using the CIDI (core version 1.0) had considerable lower 1-year rates of major depression [DSM-III-R: 9.2% (95% CI: 6.2–13.4)] than our sample of sex workers [DSM-IV: 24.4% (95% CI: 18.8–30.9)]. This is not quite the case if we compare these rates with the rates from the Zürich study. The DSM-III-R lifetime prevalence rates for women between 20 and 40 years of age concerning mood

disorders are 29.8% (95% CI: 22.3–37.3) and concerning anxiety disorders 33.6% (95% CI: 26.3–41.8) in the Zürich study (Angst et al., 2005) compared with 41.5% (95% CI: 34.7–48.5) concerning mood disorders and concerning anxiety disorders 34.2% (95% CI: 27.9–41.2) DSM-IV diagnoses in our study. But the Zürich study did not include migrants; in some migrant populations, rates of mental disorders and symptoms are higher (Alonso et al., 2004; De Witt, 2008; Lay, Lauber, & Rossler, 2005). Moreover, the Zürich study did not use the CIDI. As the use of different diagnostic instruments often results in divergent prevalent estimates (Brugha, Bebbington, & Jenkins, 1999; Jordanova, Wickramesinghe, Gerada, & Prince, 2004), we do not know which proportion of the differences or similarities in prevalences is explained by the interviews used. Another explanation for equally high rates in the Zürich study and the sample of sex workers may be the prospective instead of retrospective assessment used by the Zürich study, which usually results in higher prevalence rates (Patten, 2009). If adjustment disorders were included in the CIDI, rates of mental disorders probably would even have been higher in our sample, as female sex workers are exposed to psychosocial stressors that are causes for adjustment disorders (Jager, Burger, Becker, & Frasch, 2012). Moreover, personality disorders which are also missing in the CIDI might as well be more prevalent in sex workers.

Correlates of ill mental health among sex workers

Nonetheless the rates are high. Concerning the lifetime rates, we have to discuss if women with pre-existing mental disorders are more predisposed to get involved in sex work. But the ratio of lifetime prevalence rates and the 1-year prevalence rates rather indicate a reverse effect. This ratio in our study is almost 1:1 suggesting that the burden of sex work during the last year impacts on the womens mental health to an extent comparable to the rates developed during their whole previous lives. This indicates how burdensome sex work actually is. There is no doubt that the work conditions of sex work have a significant impact on the mental health of the involved women. As such, subjectively experienced social support is correlated with lower

rates of mental disorders. Higher rates of mental disorders, however, are related to the subjectively perceived burden associated with that kind of work. Objectively, it is open violence in and apart from the work setting, which also significantly impacts on these women"s mental health. Violence in many forms towards sex workers is a known problem internationally (Church et al., 2001; Cohan et al., 2006; Day & Ward, 2001; Potterat et al., 2004; Surratt, Kurtz, Weaver, & Inciardi, 2005), but the factors correlated with an increase in mental disorders are not evenly distributed over different work settings and nationalities. Mental disorders are especially prevalent among Swiss women, who are addicted and work on the streets, and the above mentioned group of Non-Europeans who are victims of open violence in particular in but also apart from their sex work setting. Thus, indoor sex work is not generally associated with more safety (Spice, 2007). We assume that women coming from abroad are more vulnerable for negative effects of sex work – and thus for consecutive mental problems – because they lack important ressources: Language skills to deal with customers, a reliable social network to receive help and support, and knowledge of the legal and welfare system. Furthermore, they often may have debts and cannot afford to reject customers. Also a history of abuse or coming from a country where women are suppressed can possibly impede on their capacity of defending themselves against (sexual) assaults. This may in turn encourage customers to behave abusively or may attract potentially abusive customers. Another topic is that people with mental disorders are at higher risk for violence (Maniglio, 2009), therefore, a vicious circle between violence and ill mental health is established.

How to improve the mental health of sex workers

Summarizing our results, we can say that our hypotheses became confirmed. Undoubtedly there are higher rates of mental disorders in adult female sex workers compared to the general population. Ill mental health of adult female sex workers is associated with their working

conditions: respectively the setting they work in, and ill mental health is more prevalent among adult female sex work with a foreign nationality, in particular with a non-European nationality. Do our results allow some preliminary considerations for the occupational health of sex workers? The demand for the services of sex workers is startling when we consider the extrapolated numbers of men using sex services in Zürich. But this is surely not an isolated problem in Zürich. Sex work is a major public health problem worldwide as in all European states. It has many faces, but ill mental health of sex workers is primarily related to different forms of violence as experienced by those women. Legalizing sex work as it is currently discussed in the UK does not solve this problem as can be seen from our study in Switzerland where sex work is legal, but it is a prerequisite to take action against violence towards sex workers (Goodyear & Cusick, 2007).

It would be worthwhile to investigate the impact of jurisdiction on sex work in countries where buying sex but not offering sex is illegal as in Sweden, or where buying sex is prohibited under certain conditions like in Finland.

But first of all, there is an urgent need to secure the environment of female sex workers much more intensively. This could be performed by securing the physical environment as well as by several legal and administrative measures. But as the group of sex workers is very heterogeneous, the factors of burden contributing to ill mental health have also to be identified individually and improved. As social support positively influences on their mental health, it becomes evident that a lot can be done for these women through professional support.

Curriculum Vitae

Ursula B. Koch

Im eisernen Zeit 47
8057 Zürich (Switzerland)

Tel.	+41 79 753 87 19
E-mail	ursula.koch@bag.admin.ch
Date of birth	9 May 1977, in Wil (Switzerland)
Nationality	Swiss / Chilean

Education

University of Zürich (since 2013)	Doctoral Program (Supervisors: Prof. Dr. Urte Scholz and Prof. Dr. Thomas Rosemann)
Harvard Medical School, Boston and the Commonwealth Fund, New York	Harkness Fellowship in Health Policy and Health Care Practice (2013- 2014)
University of Fribourg (2011-2012)	Association/NPO Management
Federal Office of Personnel (2010)	CAS Leadership & Management
Swiss Federation of Psychologists (2008-10)	Specialist in Health Psychology (FSP)
Institute of "Systemische Impulse" (2007-2009)	Master in Organizational Development & Coaching
University of Zürich (1999-2006)	Master of Science (Psychology, social medicine, psychopathology, organizational psychology)
Gymnasium Immensee (1996-1998)	Baccalaureate in economics
Business School (1993-1996)	Business school certificate

Professional Experience

Swiss Cancer League

Since 2016 — **Head of the department "prevention, care and aftercare"**

- Member of the executive board of the Swiss Cancer League
- Head of department with 40 members of staff
- Implementation of prevention, care and support services for cancer patients and their relatives over the continuum of care in Switzerland

Federal Office of Public Health (2005 -2016)

2010-2016 **Head of the department "National Preventions Programs"**

- Head of a department with 55 members of staff
- Development and Implementation of strategies and programs to tackle chronic and addiction diseases in collaboration with private and public partners (e.g. Business, NGOS, Academia)
- public relations, campaigns, research/monitoring; international and political affairs; contribution to different topics of Swiss Health policy

2009 – 2010 **Head of the Alcohol and Tobacco Section**

- Head of a section with 20 members of staff
- Implementation of Swiss alcohol and tobacco prevention policy

2005- 2007 **Specialist Officer**

- Gender and diversity management

Department of Health, Canton of Zug

2007-2009 **Head of Program on "Mental Health"**
(1) Raising awareness / public relations; (2) Projects on health promotion and prevention; (3) Early detection and suicide prevention; (4) Therapy and reintegration; (5) Self-help

Science & Research

2013-2016 **Harvard Medical School, Department of Global Health, Boston**
Research fellow and lecturer

2014-2016 **University of Zürich**
Research fellow

2003-2007 **University Psychiatric Clinic, Unit for Public Mental Health, Zürich**
Research projects:

- Analysis of the psychiatric health system in Luxembourg and recommendations for the psychiatry planning for the next 5-10 years
- Psychiatry planning for the Canton of Bern 2006
- Analysis of working and living conditions and mental health among socially marginalized groups (e.g. female sex workers) (2003-2004)
- Sexual health, HIV/STD-prevention and coping behavior of female sex workers with drug addiction, 2003

Psycho-Social Care and Coaching (2002-2006)

- **Center for Crisis Intervention**: Psychological support
- **"Psychologisch-Pädagogisches Zentrum Rötel**", Zürich: Psychological and pedagogical support for young adults with addiction and aggression issues (2003-2006)
- **Bruggeboge, Bern**: Individual coaching and teaching activities (2003)
- **Women shelter, Bern:** psychological counselling and coaching for women with experience of violence (2001-2003)

References

AcademyHealth. (2000, n.d). What is Health Services Research? . Retrieved from http://www.academyhealth.org/Training/ResourceDetail.cfm?ItemNumber=2305&navItemNumber=2369

Ackermann, L., & Filter, C. (1994). *Die Frau nach Katalog*. Freiburg: Herder.

Agency for Healthcare Research and Quality. (2012). Federal Patient Centered Medical Home (PCMH) collaborative catalogue of PCMH activities. . Retrieved from http://pcmh.ahrq.gov/page/federal-pcmh-activities

Agency for Healthcare Research and Quality. (2013). Plan-Do-Study-Act (PDSA) Cycle. Retrieved from https://innovations.ahrq.gov/qualitytools/plan-do-study-act-pdsa-cycle

Agency for Healthcare Research and Quality. (2016). Implementing the Patient Centered Medical Home. Retrieved from https://pcmh.ahrq.gov/

Agency for Healthcare Research and Quality. (n.d.). Advancing Excellence in Health Care. Retrieved from https://www.ahrq.gov/

Alonso, J., Angermeyer, M. C., Bernert, S., Bruffaerts, R., Brugha, T. S., Bryson, H., . . . Vollebergh, W. A. (2004). Use of mental health services in Europe: results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatrica Scandinavica. Supplementum*(420), 47-54. doi:10.1111/j.1600-0047.2004.00330.x

American Academy of Family Physicians. (2007). *Joint Principles of the Patient-Centered Medical Home*. Retrieved from Washington, DC: http://www.aafp.org/dam/AAFP/documents/practice_management/pcmh/initiatives/PCMHJoint.pdf

Anderson, C. (2010). Presenting and evaluating qualitative research. *American Journal of Pharmaceutical Education, 74*(8), 141.

Anderson, G. . (2010). *Chronic Care: Making the Case for Ongoing Care*. Retrieved from Princeton, NJ: http://www.rwjf.org/content/dam/farm/reports/reports/2010/rwjf54583

Anderson, G., & Knickman, J. R. (2001). Changing the chronic care system to meet people's needs. *Health Affairs, 20*(6), 146-160.

Andersson-Gare, B., & Neuhauser, D. (2007). The health care quality journey of Jonkoping County Council, Sweden. *Quality Management in Health Care, 16*(1), 2-9.

Angst, J., Gamma, A., Neuenschwander, M., Ajdacic-Gross, V., Eich, D., Rossler, W., & Merikangas, K. R. (2005). Prevalence of mental disorders in the Zurich Cohort Study: a twenty year prospective study. *Epidemiologia e Psichiatria Sociale, 14*(2), 68-76.

Armitage, G. D., Suter, E., Oelke, N. D., & Adair, C. E. (2009). Health systems integration: state of the evidence. *International Journal of Integrated Care, 9*, e82.

Assocication of Academic Health Centers. (2014). Acadmic Health Centers: Defined. Retrieved from http://www.aahcdc.org/About.aspx

Ayers, L. R., Beyea, S. C., Godfrey, M. M., Harper, D. C., Nelson, E. C., & Batalden, P. B. (2005). Quality improvement learning collaboratives. *Quality Management in Health Care, 14*(4), 234-247.

Bambra, C., Gibson, M., Sowden, A., Wright, A., Whitehead, M., & Petticrew, M. (2010). Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. *Journal of Epidemiology and Community Health, 64*(4), 284–291.

Baral, S., Holland, C. E., Shannon, K., Logie, C., Semugoma, P., Sithole, B., . . . Beyrer, C. (2014). Enhancing benefits or increasing harms: community responses for HIV among men who have sex with men, transgender women, female sex workers, and people who inject drugs. *Journal of Acquired Immune Deficiency Syndromes, 66 Suppl 3*, S319-328. doi:10.1097/qai.0000000000000233

Barrett, M. A., Miller, D., & Frumkin, H. (2014). Parks and health: aligning incentives to create innovations in chronic disease prevention. *Preventing Chronic Disease, 11*, E63. doi:10.5888/pcd11.130407

Baskerville, N. B., Liddy, C., & Hogg, W. (2012). Systematic review and meta-analysis of practice facilitation within primary care settings. *Annals of Family Medicine, 10*(1), 63-74. doi:10.1370/afm.1312

Beal, A.C., Doty, M., Hernandez, S. E., Shea, K.K., & Davis, K. (2007). *Closing the Divide: How Medical Homes Promote Equity in Health Care—Results from the Commonwealth Fund 2006 Health Care Quality Survey*. Retrieved from http://www.commonwealthfund.org/usr_doc/1035_Beal_closing_divide_medical_homes.pdf?section=4039

Beaumont Foundation, Duke University, Department of Community and Family Medicine, & Center for Disease Control and Prevention. (2014, n.d.). A Practical Playbook. Public Health. Primary Care. Together. Retrieved from https://practicalplaybook.org/

Bellows, J., Young, S., & Chase, A. (2014). Person-focused care at Kaiser Permanente. *The Permanente Journal, 18*(1), 90-91. doi:10.7812/tpp/13-165

Bengoa, R. (2013). Transforming health care: an approach to system-wide implementation. *International Journal of Integrated Care, 13*, e039.

Berchtold, P. (2013). Schweizer Ärztenetze-Erhebung 2013. Retrieved from http://fmc.ch/infothek/erhebung-aerztenetze/

Berchtold, P., & Peytremann-Bridevaux, I. (2011). Integrated care organizations in Switzerland. *International Journal of Integrated Care, 11*(Special 10th Anniversary Edition), e010.

Berwick, D. M. (1989). Continuous improvement as an ideal in health care. *New England Journal of Medicine, 320*(1), 53-56. doi:10.1056/nejm198901053200110

Bisognano, Maureen. (2014). Flipping Health Care" - IHI 25th National Forum Keynote Address YouTube.

Bisognano, Maureen, & Kenney, Charles. (2012). *Pursuing the Triple Aim: Seven Innovators Show the Way to Better Care, Better Health, and Lower Costs*. San Fransisco: Jossey-Bass.

Bitton, A., Ellner, A. , Pabo, E., Stout, S., Sugarman, J. R., Sevin, C., . . . Phillips, R. S. (2014). The Harvard Medical School Academic Innovations Collaborative: transforming primary care practice and education. *Academic Medicine, 89*(9), 1239-1244. doi:10.1097/ACM.0000000000000410

Bitton, A., Martin, C., & Landon, B. E. (2010). A Nationwide Survey of Patient Centered Medical Home Demonstration Projects. *Journal of General Internal Medicine, 25*(6), 584-592. doi:10.1007/s11606-010-1262-8

Bitton, A., Pereira, A.G., Smith, C.S., Babbott, S.F., & Bowen, J.L. (2013). The EFECT Framework for Interprofessional Education in the Patient Centered Medical Home. *Healthcare: Journal of Delivery Science and Innovation, 1*, 63-68.

Bodenheimer, T., Chen, E., & Bennett, H. D. (2009). Confronting the growing burden of chronic disease: can the U.S. health care workforce do the job? *Health Affairs, 28*(1), 64-74. doi:10.1377/hlthaff.28.1.64

Bodenheimer, T., Ghorob, A., Willard-Grace, R., & Grumbach, K. (2014). The 10 Building Blocks of High-Performing Primary Care. *Annals of Family Medicine, 12*(2), 166-171. doi:10.1370/afm.1616

Bodenheimer, T., Grumbach, K., & Berenson, R. A. (2009). A lifeline for primary care. *New England Journal of Medicine, 360*(26), 2693-2696. doi:10.1056/NEJMp0902909

Bodkin, K., Delahunty-Pike, A., & O'Shea, T. (2015). Reducing stigma in healthcare and law enforcement: a novel approach to service provision for street level sex workers. *International Journal for Equity in Health, 14*, 35. doi:10.1186/s12939-015-0156-0

Boyle, F. M., Dunne, M. P., Najman, J. M., Western, J. S., Turrell, G., Wood, C., & Glennon, S. (1997). Psychological distress among female sex workers. *Australian and New Zealand Journal of Public Health, 21*(6), 643-646.

Bradley, E. H., Curry, L. A., & Devers, K. J. (2007). Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Services Research, 42*(4), 1758-1772. doi:10.1111/j.1475-6773.2006.00684.x

Bradley, E. H., Elkins, B. R., Herrin, J., & Elbel, B. (2011). Health and social services expenditures: associations with health outcomes. *BMJ Quality& Safety, 20*(10), 826-831. doi:10.1136/bmjqs.2010.048363

Bradley, E. H., & Taylor, L.A. (2013). *The American Health Care Paradox: Why Spending More is Getting Us Less*. New York: PublicAffairs.

Braveman, P. (2006). Health disparities and health equity: concepts and measurement. *Annual Review of Public Health, 27*, 167-194. doi:10.1146/annurev.publhealth.27.021405.102103

Britten, N. (1995). Qualitative interviews in medical research. *BMJ, 311*(6999), 251-253.

Brogly, S. B., Bruneau, J., Lamothe, F., Vincelette, J., & Franco, E. L. (2002). HIV-positive notification and behavior changes in Montreal injection drug users. *AIDS Education and Prevention, 14*(1), 17-28.

Brooks-Gordon, B. (2008). State violence towards sex workers. *BMJ, 337*, a908. doi:10.1136/bmj.a908

Bruffee, K (1999). *Collaborative Learning: Higher Education, Interdependence, and the Authority of Knowledge*. Baltimore: The Johns Hopkins University Press.

Brugha, T. S., Bebbington, P. E., & Jenkins, R. (1999). A difference that matters: comparisons of structured and semi-structured psychiatric diagnostic interviews in the general population. *Psychological Medicine, 29*(5), 1013-1020.

Bundesamt für Gesundheit. (2006). *Switzerland's National Drugs Policy. The federal governements third package of measures to reduce drug-related problems. (MapaDro III) 2006-2011*. Federal Office of Public Health.

Bundesamt für Gesundheit. (2009). *Qualitätsstrategie des Bundes im Schweizerischen Gesundheitswesen* Bern: Bundesamt für Gesundheit

Bundesamt für Gesundheit. (2012). *Neue Versorgungsmodelle für die medizinische Grundversorgung von GDK und BAG*. Bern: Schweizerische Gesundheitsdirektorenkonferenz und Bundesamt für Gesundheit

Bundesamt für Gesundheit. (2013). *Gesundheit 2020. Die gesundheitspolitischen Prioritäten des Bundesrates*. . Bern: Bundesamt für Gesundheit.

Bungard, W, Holling, H, & Schultz-Gambard, J. (1996). *Methoden der Arbeits- und Gesundheitspsychologie*. Weinheim: Psychologie Verlags Union.

Cambridge Health Alliance. (n.d.). CHA. Cambridge Health Alliance. . Retrieved from http://www.challiance.org/cha/default.aspx

Cantor, Jeremy, Cohen, Larry, Mikkelsen, Leslie, Pañares, Rea, Srikantharajah, Janani, & Valdovinos, Erica. (2011). Community centered Health Homes. Bridging the gap between health services and community prevention. . http://www.lahealthaction.org/library/HE_Cmty-centered_health_homes_032311.pdf

Carrier, E., Gourevitch, M. N., & Shah, N. R. (2009). Medical homes: challenges in translating theory into practice. *Medical Care, 47*(7), 714-722. doi:10.1097/MLR.0b013e3181a469b0

Centers for Medicare & Medicaid Services. (2017). About the CMS Innovation Center. Retrieved from https://innovation.cms.gov/About/index.html

Centers for Medicare and Medicaid Services. Medicare “Accountable Care Organizations” Shared Savings Program – New Section 1899 of Title XVIII, Preliminary Questions & Answers. Retrieved from https://www.aace.com/files/cmspremlimqa.pdf

Centers for Prevention and Disase Control. (n.d). Centers for Prevention and Disase Control (CDC).

Chan, Arthur W. K., Pristach, Edward A., Welte, John W., & Russell, Marcia. (1993). Use of the TWEAK Test in Screening for Alcoholism/ Heavy Drinking in Three Populations. *Alcoholism: Clinical and Experimental Research, 17*(6), 1188-1192. doi:10.1111/j.1530-0277.1993.tb05226.x

Chen, B., & Fan, VY. (2016). Global Budget Payment: Proposing the CAP Framework. *Journal of Health Care Organization, Provision, and Financing, 53*, 1-4.

Cherpitel, Cheryl J. (1995). Screening for alcohol problems in the emergency room: a rapid alcohol problems screen. *Drug and Alcohol Dependence, 40*(2), 133-137. doi:http://dx.doi.org/10.1016/0376-8716(95)01199-4

Christensen, C.M., Bohmer, M.J, & Kenagy, J. . (2000). Will Disruptive Innovations Cure Health Care? *Harvard Business Review*.

Chudakov, B., Ilan, K., Belmaker, R. H., & Cwikel, J. (2002). The motivation and mental health of sex workers. *Journal of Sex and Marital Therapy, 28*(4), 305-315.

Church, S., Henderson, M., Barnard, M., & Hart, G. (2001). Violence by clients towards female prostitutes in different work settings: questionnaire survey. *BMJ, 322*(7285), 524-525.

Clancy, C. M., Margolis, P. A., & Miller, M. (2013). Collaborative networks for both improvement and research. *Pediatrics, 131 Suppl 4*, S210-214. doi:10.1542/peds.2012-3786H

Clay, M. A., 2nd, Sikon, A. L., Lypson, M. L., Gomez, A., Kennedy-Malone, L., Bussey-Jones, J., & Bowen, J. L. (2013). Teaching while learning while practicing: reframing faculty development for the patient-centered medical home. *Academic Medicine, 88*(9), 1215-1219. doi:10.1097/ACM.0b013e31829ecf89

Cohan, D., Lutnick, A., Davidson, P., Cloniger, C., Herlyn, A., Breyer, J., . . . Klausner, J. (2006). Sex worker health: San Francisco style. *Sexually Transmitted Infections, 82*(5), 418-422. doi:10.1136/sti.2006.020628

Coleman, K., Austin, B. T., Brach, C., & Wagner, E. H. (2009). Evidence on the Chronic Care Model in the new millennium. *Health Affairs, 28*(1), 75-85. doi:10.1377/hlthaff.28.1.75

Conrad, D. A., Grembowski, D., Hernandez, S. E., Lau, B., & Marcus-Smith, M. (2014). Emerging lessons from regional and state innovation in value-based payment reform: balancing collaboration and disruptive innovation. *Milbank Quarterly, 92*(3), 568-623. doi:10.1111/1468-0009.12078

Council of Accountable Physician Practices. (2011, n.d). What is an Accountable Care Organization (ACO)? Retrieved from http://www.accountablecarefacts.org/topten/what-is-an-accountable-care-organization-aco-1

Crabtree, B., Chase, S.M., Wise, C.G., Schiff, G.D., Schmidt, L.A., & Goyzueta, J.R. (2011). Evaluation of Patient Centered Medical Home Pratice Transformation Initiatives. *MedCare, 49*, 10-16.

Cramm, J. M., & Nieboer, A. P. (2012). In the Netherlands, rich interaction among professionals conducting disease management led to better chronic care. *Health Affairs, 31*(11), 2493-2500. doi:10.1377/hlthaff.2011.1304

Cremonte, M., Ledesma, R. D., Cherpitel, C. J., & Borges, G. (2010). Psychometric properties of alcohol screening tests in the emergency department in Argentina, Mexico and the United States. *Addictive Behaviors, 35*(9), 818-825. doi:10.1016/j.addbeh.2010.03.021

Cross, R., & Parker, A. . (2006). *The hidden power of social networks*. Cambridge: The Harvard Business Press.

Cusick, L. . (2002). Youth prostitution: a review. *Child Abuse Review, 11*, 230-251.

Cwikel, J., Ilan, K., & Chudakov, B. (2003). Women brothel workers and occupational health risks. *Journal of Epidemiology and Community Health, 57*(10), 809-815.

Czypionka, Thomas. (2011). Experimenting with a bundled payment system for diabetes care in the Netherlands: The first tangible effects. *International Journal of Integrated Care, 11*, e139.

Dahlgren, G., & Whitehead, M. (1991). *Policies and strategies to promote social equity in health*
Retrieved from Stockholm: http.//s2.medicina.uady.mx/observatorio/docs/eg/_li/Eg_2007_Li_dahlgren.pdf

Daly, R. (2013). Redesigning healthcare. New delivery initiatives include ACOs, walk-in clinics, medical homes. *Modern Healthcare, 43*(12), 6-7, 16, 11.

Damschroder, L, D, Peikes, & D, Petersen. (2013). *Using Implementation Research to guide adaptation, Implementation an Dissemination of Patient-Centred Medical Home Models*. Retrieved from Rockville, MD:

Daniel, D.M. , Wagner, E.H., Coleman, K., Schaefer, J.K., Austin, Brian T., Abrams, Melinda K., . . . Sugarman, Jonathan R. (2013). Assessing Progress toward Becoming a Patient-Centered Medical Home: An Assessment Tool for Practice Transformation. *Health Services Research, 48*(6 Pt 1), 1879-1897. doi:10.1111/1475-6773.12111

Day, S., & Ward, H. (2001). Violence towards female prostitutes. Violence in sex work extends to more than risks from clients. *BMJ, 323*(7306), 230.

Day, S., & Ward, H. (2007). British policy makes sex workers vulnerable. *BMJ, 334*(7586), 187. doi:10.1136/bmj.39104.638785.59

De Pietro, C., Camenzind, P, ., Sturny, I., Crivelli, L., Edwards-Garavoglia, S., Spranger, A., . . . Quentin, W.S. . (2015). *Switzerland: Health system review. Health Systems in Transition.* Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0010/293689/Switzerland-HiT.pdf?ua=1

De Witt, M, Tuinebreijer, AE, Dekker, J, et al. . (2008). Depressive and anxiety disorders in differnt ethic groups. *Social Psychiatry and Psychiatric Epidemiology, 43*, 905-912.

Deering, K. N., Amin, A., Shoveller, J., Nesbitt, A., Garcia-Moreno, C., Duff, P., . . . Shannon, K. (2014). A systematic review of the correlates of violence against sex workers. *American Journal of Public Health, 104*(5), e42-54. doi:10.2105/ajph.2014.301909

Dehnel, P., Peitso, M., Golnik, A., Harvieux, G., Kopski, K., Broers, J., . . . Coy, H. (2010). Building a home. Twenty tips for creating a medical home. *Minnesota Medicine, 93*(1), 32-35.

Department of Vermont Health Access. (2014). *Vermont Blueprint for Health 2013 Annual Report January 30, 2014* Retrieved from Williston, VT: http://hcr.vermont.gov/sites/hcr/files/pdfs/VTBlueprintforHealthAnnualReport2013.pdf

Deshpande, Neha A., & Nour, Nawal M. (2013). Sex Trafficking of Women and Girls. *Reviews in Obstetrics and Gynecology, 6*(1), e22-e27.

Ditmore, M., & Saunders, P. (1998). Sex work and sex trafficking. *Sex Health Exch*(1), 15.

Duke University School of Medicine. (2017). Duke Community & Family Medicine. Duke University School of Medicine. . Retrieved from https://cfm.duke.edu/

Egede, L.E. (2006). Race, Ethnicity, Culture, and Disparities in Health care. *Journal of General Internal Medicine, 21*(6), 667-669. doi:10.1111/j.1525-1497.2006.0512.x

Egger, M. J., Day, J., Scammon, D. L., Li, Y., Wilson, A., & Magill, M. K. (2012). Correlation of the Care by Design primary care practice redesign model and the principles of the patient-centered medical home. *Journal of the American Board of Family Medicine, 25*(2), 216-223. doi:10.3122/jabfm.2012.02.110159

Eggleston, E. M., & Finkelstein, J. A. (2014). Finding the role of health care in population health. *JAMA, 311*(8), 797-798. doi:10.1001/jama.2014.163

El-Bassel, N., Witte, S. S., Wada, T., Gilbert, L., & Wallace, J. (2001). Correlates of partner violence among female street-based sex workers: substance abuse, history of childhood abuse, and HIV risks. *AIDS Patient Care and STDS, 15*(1), 41-51. doi:10.1089/108729101460092

Eriksson, M., & Lindstrom, B. (2005). Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal of Epidemiology and Community Health, 59*(6), 460-466. doi:10.1136/jech.2003.018085

Farley, M., & Barkan, H. (1997). Somatization, dissociation, and tension-reducing behaviors in psychiatric outpatients. *Psychotherapy and Psychosomatics, 66*(3), 133-140.

Farley, M., Cotton, A., Lynne, J., Spiwak, F., Reyes, M. , Alvarez, D. , & Sezgin, U. (2004). Prostitution and Trafficking in Nine Countries: An Update on Violence and Posttraumatic Disorder. *Journal of Trauma Practice, 2*(3-4), 33-74.

Fazalullasha, F., Taras, J., Morinis, J., Levin, L., Karmali, K., Neilson, B., . . . Ford-Jones, E. L. (2014). From office tools to community supports: The need for infrastructure to address the social determinants of health in paediatric practice. *Paediatrics & Child Health, 19*(4), 195-199.

Fernald, D. H., Deaner, N., O'Neill, C., Jortberg, B. T., degruy, F. V., 3rd, & Dickinson, W. P. (2011). Overcoming early barriers to PCMH practice improvement in family medicine residencies. *Family Medicine, 43*(7), 503-509.

Fisher, E. S., Shortell, S. M., Kreindler, S. A., Van Citters, A. D., & Larson, B. K. (2012). A framework for evaluating the formation, implementation, and performance of accountable care organizations. *Health Affairs, 31*(11), 2368-2378. doi:10.1377/hlthaff.2012.0544

Flick, U. (1995). *Qualitative Forschung. Theorie, Methoden, Anwendung in Psychologie und Sozialwissenschaften.* Reinbek bei Hamburg: Rowohlt.

Flick., Uwe. (2008). *Triangulation: Eine Einführung* (2. Auflage ed.). Wiesbaden VS Verlag.

Forman, J., Harrod, M., Robinson, C., Annis-Emeott, A., Ott, J., Saffar, D., . . . Greenstone, C. L. (2014). First Things First: Foundational Requirements for a Medical Home in an Academic Medical Center. *Journal of General Internal Medicine*. doi:10.1007/s11606-013-2674-z

Fox, D. M. (2010). Realizing and allocating savings from improving health care quality and efficiency. *Preventing Chronic Disease, 7*(5), A99.

Fraher, E. P., Ricketts, T. C., Lefebvre, A., & Newton, W. P. (2013). The role of academic health centers and their partners in reconfiguring and retooling the existing workforce to practice in a transformed health system. *Academic Medicine, 88*(12), 1812-1816. doi:10.1097/acm.0000000000000024

Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., . . . Zurayk, H. (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet, 376*(9756), 1923-1958. doi:10.1016/s0140-6736(10)61854-5

Fuchs, V. R. (2013). Current challenges to academic health centers. *JAMA, 310*(10), 1021-1022. doi:10.1001/jama.2013.227197

Gittell, Jody Hoffer, Seidner, Rob, & Wimbush, Julian. (2010). A Relational Model of How High-Performance Work Systems Work. *Organization Science, 21*(2), 490-506. doi:10.1287/orsc.1090.0446

Global Forum on Innovation in Health Professional Education, & Institute of Medicine. (2015) *Building Health Workforce Capacity Through Community-Based Health Professional Education: Workshop Summary*. Washington (DC): National Academies Press (US) Copyright 2015 by the National Academy of Sciences. All rights reserved.

Goldstein, P.J. (1979). *Prostitution and Drugs*. Maryland, U.S. : Lexington Books.

Goodyear, M. D., & Cusick, L. (2007). Protection of sex workers. *BMJ, 334*(7584), 52-53. doi:10.1136/bmj.39087.642801.BE

Gottlieb, K. (2013). The Nuka System of Care: improving health through ownership and relationships. *International Journal of Circumpolar Health, 72*. doi:10.3402/ijch.v72i0.21118

Green, L. A., Jones, S. M., Fetter, G., Jr., & Pugno, P. A. (2007). Preparing the personal physician for practice: changing family medicine residency training to enable new model practice. *Academic Medicine, 82*(12), 1220-1227. doi:10.1097/ACM.0b013e318159d070

Gupta, R., Davis, E., & Horton, C. (2013). Interval examination: building primary care teams in an urban academic teaching clinic. *Journal of General Internal Medicine, 28*(11), 1517-1521. doi:10.1007/s11606-013-2598-7

Hacker, K., & Walker, D. K. (2013). Achieving population health in accountable care organizations. *American Journal of Public Health, 103*(7), 1163-1167. doi:10.2105/ajph.2013.301254

Halpin, HA., Morales-Suárez-Varela, MM., & Martin-Moreno, JM. (2010). Chronic disease prevention and the New Public Health. *Public Health Reviews, 32*, 120-154.

Harris, Lois R., & Brown, Gavin T. L. (2010). Mixing interview & questionnaire methods *Practical Assessment, Research & Evaluation, 15*(1), 1-14.

Harrison, K. M., & Dean, H. D. (2011). Use of data systems to address social determinants of health: a need to do more. *Public Health Reports, 126 Suppl 3*, 1-5.

Harvard Medical School Center for Primary Care. (2011). Academic Innovations Collaborative. Retrieved from https://primarycare.hms.harvard.edu/what-we-do/innovation/academic-innovations-collaborative

Harvey, Gill, Loftus-Hills, Alison, Rycroft-Malone, Jo, Titchen, Angie, Kitson, Alison, McCormack, Brendan, & Seers, Kate. (2002). Getting evidence into practice: the role and function of facilitation. *Journal of Advanced Nursing, 37*(6), 577-588. doi:10.1046/j.1365-2648.2002.02126.x

Hawkes, N. (2013). Health department chooses 14 projects as exemplars of integration of health and social care. *BMJ, 347*, f6628. doi:10.1136/bmj.f6628

HealthTeamWorks. (n.d.). The Colorado Family Medicine Residency PCMH Project. Retrieved from http://www.healthteamworks.org/medical-home/pcmh-residency.html

Heifetz, R, Grashow, A, & Linsky, M. (2009). *The practice of adaptive leadership: Tools and tactics for changing your organization and the world*. Boston, MA: Harvard Business Press.

Hildebrandt, H., C., Hermann., Knittel, R., Richter-Reichhelm, K., Siegel, A., & Witzenrath, W. (2010). Gesundes Kinzigtal Integrated Care: improving population health by a shared health gain approach and a shared savings contract. *International Journal of Integrated Care, 10*, e046.

Hildebrandt, H., Pimperl, A., Schulte, T., Hermann, C., Riedel, H., Schubert, I., . . . Wetzel, M. (2015). [Pursuing the triple aim: evaluation of the integrated care system Gesundes Kinzigtal: population health, patient experience and cost-effectiveness]. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz, 58*(4-5), 383-392. doi:10.1007/s00103-015-2120-y

Institut für Hausarztmedizin. (2016, 2016, July 12th). Medical Home. Retrieved from http://www.hausarztmedizin.uzh.ch/ChronicCare/MedicalHome.html

Institute for Health Technology Transformation, iHT2. (2012). *Population Health Management. A Roadmap for Provider-Based Automation in a New Era of Healthcare*. Retrieved from New York: http://ihealthtran.com/pdf/PHMReport.pdf

Institute for Healthcare Improvement. (2003). *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement. IHI Innovation Series white paper.* Boston.

Institute for Healthcare Improvement. (2005.). *Going Lean in Health Care. IHI Innovation Series white paper.* . Cambridge, MA.

Institute for Healthcare Improvement. (2012). *IHI 90-Day R&D Project Final Summary Report: Improving Graduate Medical Education: Innovations in Primary Care and Ambulatory Settings*. Retrieved from Cambridge, MA: www.ihi.org

Institute for Healthcare Improvement. (2017). Improving healthcare and health worldwide. Retrieved from http://www.ihi.org/Pages/default.aspx

Institute of Medicine. (1994). *Defining Primary Care: An Interim Report*. Retrieved from Washington: www.nap.edu/openbook.php?record_id=9153&page=1

Institute of Medicine. (2001). *Crossing the Quality Chasm: A new Health system for the 21st Century* (Institute of Medicine Ed. Vol. 6). Washington, D.C: National Academy Press

Institute of Medicine. (2004). Chapter 1, INTRODUCTION. In Kohn LT (Ed.), *Academic Health Centers: Leading Change in the 21st Century*. Washington (DC): National Academies Press (US).

Institute of Medicine. (2012). *Primary Care and Public Health: Exploring Integration to Improve Population Health*. Retrieved from Washington, DC: https://www.nap.edu/catalog/13381/primary-care-and-public-health-exploring-integration-to-improve-population

Institute of Medicine. (2017, 2017). The National Academies of Sciences, Engineering and Medicine.

Jackson, G. L., Powers, B. J., Chatterjee, R., Bettger, J. P., Kemper, A. R., Hasselblad, V., . . . Williams, J. W. (2013). Improving patient care. The patient centered medical home. A Systematic Review. *Annals of Internal Medicine, 158*(3), 169-178.

Jackson, L., Highcrest, A., & Coates, R. A. (1992). Varied potential risks of HIV infection among prostitutes. *Social Science and Medicine, 35*(3), 281-286.

Jacobson, D., & Gance-Cleveland, B. (2011). A systematic review of primary healthcare provider education and training using the Chronic Care Model for childhood obesity. *Obesity Reviews, 12*(5), e244-256. doi:10.1111/j.1467-789X.2010.00789.x

Jager, M., Burger, D., Becker, T., & Frasch, K. (2012). Diagnosis of adjustment disorder: reliability of its clinical use and long-term stability. *Psychopathology, 45*(5), 305-309. doi:10.1159/000336048

Javidi, H., & Yadollahie, M. (2012). Post-traumatic Stress Disorder. *The international journal of occupational and environmental medicine, 3*(1), 2-9.

Jeal, N., Salisbury, C., & Turner, K. (2008). The multiplicity and interdependency of factors influencing the health of street-based sex workers: a qualitative study. *Sexually Transmitted Infections, 84*(5), 381-385. doi:10.1136/sti.2008.030841

Jette, D. U., Grover, L., & Keck, C. P. (2003). A qualitative study of clinical decision making in recommending discharge placement from the acute care setting. *Physical Therapy, 83*(3), 224-236.

Jones, C. J. (2007). For debate: Should prostitution be legalised and regulated? *BMJ, 334*(7599), 863. doi:10.1136/bmj.39191.709919.3A

Jordanova, V., Wickramesinghe, C., Gerada, C., & Prince, M. (2004). Validation of two survey diagnostic interviews among primary care attendees: a comparison of CIS-R and CIDI with SCAN ICD-10 diagnostic categories. *Psychological Medicine, 34*(6), 1013-1024.

Jortberg, B. T., Fernald, D. H., Dickinson, L. M., Coombs, L., Deaner, N., O'Neill, C., . . . Dickinson, W. P. (2014). Curriculum redesign for teaching the PCMH in Colorado Family Medicine Residency programs. *Family Medicine, 46*(1), 11-18.

Kadu, M. K., & Stolee, P. (2015). Facilitators and barriers of implementing the chronic care model in primary care: a systematic review. *BMC Family Practice, 16*, 12. doi:10.1186/s12875-014-0219-0

Kaiser Permanente. (2013). *New Ideas and New Action On Obesity. A report from the Forum for Healthy Behavior Change*. Retrieved from Washington: http://kpihp.org/wp-content/uploads/2013/10/hbc_report/

Kaiser Permanente. (2017). Kaiser Permanente Center for Total Health. Retrieved from https://centerfortotalhealth.org/

Kannampallil, Thomas G., Schauer, Guido F., Cohen, Trevor, & Patel, Vimla L. (2011). Considering complexity in healthcare systems. *Journal of Biomedical Informatics, 44*(6), 943-947. doi:http://doi.org/10.1016/j.jbi.2011.06.006

Katzenbach, J., & Smith, DK. . (2003). *The wisdom of teams: Creating the high-performance organization.* . Cambridge: Harvard Business School Press.

Kellermann, A. L., & Jones, S. S. (2013). What it will take to achieve the as-yet-unfulfilled promises of health information technology. *Health Affairs, 32*(1), 63-68. doi:10.1377/hlthaff.2012.0693

Kilo, C. M. (1998). A framework for collaborative improvement: lessons from the Institute for Healthcare Improvement's Breakthrough Series. *Quality Management in Health Care, 6*(4), 1-13.

Kilo, C. M., & Wasson, J. H. (2010). Practice redesign and the patient-centered medical home: history, promises, and challenges. *Health Affairs, 29*(5), 773-778. doi:10.1377/hlthaff.2010.0012

Kindig, D. (2006). A pay-for-population health performance system. *JAMA, 296*(21), 2611-2613. doi:10.1001/jama.296.21.2611

Kindig, D. (2007). Understanding population health terminology. *Milbank Quarterly, 85*(1), 139-161. doi:10.1111/j.1468-0009.2007.00479.x

Kindig, D., & Isham, G. (2014). Population health improvement: a community health business model that engages partners in all sectors. *Frontiers of Health Services Management, 30*(4), 3-20.

Kindig, D., & Stoddart, G. (2003). What Is Population Health? *American Journal of Public Health, 93*(3), 380-383. doi:10.2105/AJPH.93.3.380

Knox, L, Taylor, EF, GEonnotti, K, Machta, R, Kim, J, Nysenbaum, J, Parchman, M. (2011). *Developing and Running a Primary Care Practice Facilitation Program: A How-to Guide*. Retrieved from Rockville, MD: https://pcmh.ahrq.gov/page/implementing-pcmh

Kodner, D. L., & Spreeuwenberg, C. (2002). Integrated care: meaning, logic, applications, and implications--a discussion paper. *International Journal of Integrated Care, 2*, e12.

Koshy, R. A., Conrad, D. A., & Grembowski, D. (2015). Lessons from Washington State's Medical Home Payment Pilot: What It Will Take to Change American Health Care. *Popul Health Manag, 18*(4), 237-245. doi:10.1089/pop.2014.0117

Krüger, M. (2001). *Prostitution und Gesundheit: gesundheitsrelevante Aspekte weiblicher Prostitutionstätigkeit*. Hamburg: HoHo-Verlag Hoffmann und Hoyer.

Laffel, G., & Blumenthal, D. (1989). The case for using industrial quality management science in health care organizations. *JAMA, 262*(20), 2869-2873.

Lancet. (2009). Tackling the burden of chronic diseases in the USA. *The Lancet, 373*(9659), 185.

Lancet. (2014). Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet, The*. doi:10.1016/s0140-6736(14)61682-2

Lancet. (2015). Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet, 385*(9963), 117-171. doi:10.1016/s0140-6736(14)61682-2

Landon, B., Gill, J., Antonelli, R. , & Rich, E. (2010). Using evidence to inform policy: developing a policy-relevant research agenda for the patient-centered medical home. *Journal of General Internal Medicine, 25*(6), 581-583. doi:10.1007/s11606-010-1303-3

Landon, B., Hicks, L. S., O'Malley, A. J., Lieu, T. A., Keegan, T., McNeil, B. J., & Guadagnoli, E. (2007). Improving the management of chronic disease at community health centers. *New England Journal of Medicine, 356*(9), 921-934. doi:10.1056/NEJMsa062860

Langley, G., Nolan, K., Norman, C., Provost, L., & Nolan, T. W. (1996). *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (Jossey-Bass Business and Management Series)*: Jossey-Bass.

Langley, G., Nolan, KM, Nolan, TW, Norman, CL, & Provost, LP (2009). *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* (Nolan KM Langley GL, Nolan TW, Norman CL, Provost LP Ed. 2nd edition ed.). San Francisco (CA): Jossey-Bass Publishers

Lanham, H. J., Leykum, L. K., Taylor, B. S., McCannon, C. J., Lindberg, C., & Lester, R. T. (2013). How complexity science can inform scale-up and spread in health care: understanding the role of self-organization in variation across local contexts. *Social Science and Medicine, 93*, 194-202. doi:10.1016/j.socscimed.2012.05.040

Larney, S., Mathers, B. M., Poteat, T., Kamarulzaman, A., & Degenhardt, L. (2015). Global Epidemiology of HIV Among Women and Girls Who Use or Inject Drugs: Current Knowledge and Limitations of Existing Data. *Journal of Acquired Immune Deficiency Syndromes, 69 Suppl 2*, S100-109. doi:10.1097/qai.0000000000000623

Lay, B., Lauber, C., & Rossler, W. (2005). Are immigrants at a disadvantage in psychiatric in-patient care? *Acta Psychiatrica Scandinavica, 111*(5), 358-366. doi:10.1111/j.1600-0447.2004.00509.x

Lazarus, L., Deering, K.N, Nabess, R., Gibson, K., Tyndall, M.W., & Shannon, K. (2012). Occupational Stigma as a Primary Barrier To Health Care For Street-Based Sex Workers in Canada. *Culture, health & sexuality, 14*(2), 139-150. doi:10.1080/13691058.2011.628411

Lennon, M. C. (1995). Work conditions as explanations for the relation between socioeconomic status, gender, and psychological disorders. *Epidemiologic Reviews, 17*(1), 120-127.

Leutz, W. N. (1999). Five laws for integrating medical and social services: lessons from the United States and the United Kingdom. *Milbank Quarterly, 77*(1), 77-110, iv-v.

Lewis, V. A., McClurg, A. B., Smith, J., Fisher, E. S., & Bynum, J. P. (2013). Attributing patients to accountable care organizations: performance year approach aligns stakeholders' interests. *Health Affairs, 32*(3), 587-595. doi:10.1377/hlthaff.2012.0489

Love, R. (2015). Street Level Prostitution: A Systematic Literature Review. *Issues in Mental Health Nursing, 36*(8), 568-577. doi:10.3109/01612840.2015.1020462

MacColl Center for Healthcare Innovation. (2017). MacColl Center for Healthcare Innovation. Group Health Research Institute. . Retrieved from http://maccollcenter.org/

MacDonald-Wilson, K. L., & Nemec, P. B. (2015). Education and training column: the learning collaborative. *Psychiatric rehabilitation journal, 38*(1), 96-98. doi:10.1037/prj0000126

Magnan, S., Fisher, E., Kindig, D., Isham, G., Wood, D., Eustis, M., . . . Leitz, S. (2012). Achieving accountability for health and health care. *Minnesota Medicine, 95*(11), 37-39.

Mancini, A. D., Moser, L. L., Whitley, R., McHugo, G. J., Bond, G. R., Finnerty, M. T., & Burns, B. J. (2009). Assertive community treatment: facilitators and barriers to implementation in routine mental health settings. *Psychiatric Services, 60*(2), 189-195. doi:10.1176/appi.ps.60.2.189

Maniglio, R. (2009). Severe mental illness and criminal victimization: a systematic review. *Acta Psychiatrica Scandinavica, 119*(3), 180-191. doi:10.1111/j.1600-0447.2008.01300.x

Mardh, P. A., Shoubnikova, M., Genc, M., Chaplinkas, S., & Unzeitig, V. (1999). Health care of female commercial sex workers. *European Journal of Contraception and Reproductive Health Care, 4*(3), 165-180.

Marmot, M, Friel, S, Bell, R, Houweling, T. A, & Taylor, S. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet, The, 372*(9650), 1661-1669. doi:10.1016/s0140-6736(08)61690-6

Martinez, N., Berchtold, P., Busato, A., & Egger, M. (2012). *Effectiveness of Integrated care programmes in adults with chronic conditions: a systematic review*. Retrieved from Bern: http://www.bag.admin.ch/themen/krankenversicherung/00305/06506/06664/index.html?lang=de

Mason, Mark. (2010). Sample Size and Saturation in PhD Studies Using Qualitative Interviews. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research,, 11*(3).

Mays, N., & Pope, C. (1995). Rigour and qualitative research. *BMJ, 311*(6997), 109-112.

McAllister, J. W., Presler, E., Turchi, R. M., & Antonelli, R. C. (2009). Achieving effective care coordination in the medical home. *Pediatric Annals, 38*(9), 491-497. doi:10.3928/00904481-20090820-07

McBride, M. (2013). 4 Trends to watch in 2013. *Medical Economics, 90*(1), 36.

McCarthy, D, & Klein, S. (2010) The Triple Aim Journey: Improving Population Health and Patients' Experience of Care, While Reducing Costs. *Case Studies Series: Vol. 48*: Commonwealth Fund.

Meyers, D., Quinn, M., & Clancy, C. M. (2011). Health information technology: turning the patient-centered medical home from concept to reality. *American Journal of Medical Quality, 26*(2), 154-156. doi:10.1177/1062860610396165

Miller, W. L., Crabtree, B. F., Nutting, P. A., Stange, K. C., & Jaen, C. R. (2010). Primary care practice development: a relationship-centered approach. *Annals of Family Medicine, 8 Suppl 1*, S68-79; S92. doi:10.1370/afm.1089

Minichiello, V., Marino, R., & Browne, J. (2001). Knowledge, risk perceptions and condom usage in male sex workers from three Australian cities. *AIDS Care, 13*(3), 387-402. doi:10.1080/09540120120044035

Mitchell, S. M., & Shortell, S. M. (2000). The governance and management of effective community health partnerships: a typology for research, policy, and practice. *Milbank Quarterly, 78*(2), 241-289, 151.

Moraes, C. L., Viellas, E. F., & Reichenheim, M. E. (2005). Assessing alcohol misuse during pregnancy: evaluating psychometric properties of the CAGE, T-ACE and TWEAK in a Brazilian setting. *Journal of Studies on Alcohol, 66*(2), 165-173.

Mossialos, E., Wenzl, M., Osborn, R., & Anderson, C. (2013). *International Profiles of Health Care Systems, 2014*. Retrieved from N.Y. : http://www.commonwealthfund.org/~/media/files/publications/fund-report/2015/jan/1802_mossialos_intl_profiles_2014_v7.pdf

Nadeem, E., Olin, S. S., Hill, L. C., Hoagwood, K. E., & Horwitz, S. M. (2013). Understanding the components of quality improvement collaboratives: a systematic literature review. *Milbank Quarterly, 91*(2), 354-394. doi:10.1111/milq.12016

Nancarrow, Susan A., Roots, Alison, Grace, Sandra, Moran, Anna M., & Vanniekerk-Lyons, Kerry. (2013). Implementing large-scale workforce change: learning from 55 pilot sites of allied health workforce redesign in Queensland, Australia. *Human Resources for Health, 11*, 66-66. doi:10.1186/1478-4491-11-66

National Committee for Quality Assurance. Patient-Centered Medical Home Recognition. Retrieved from http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh

National Institute for Children Healthcare Quality. (2017). NICHQ. Retrieved from http://www.nichq.org/

Nembhard, Ingrid M. (2009). Learning and Improving in Quality Improvement Collaboratives: Which Collaborative Features Do Participants Value Most? *Health Services Research, 44*(2 Pt 1), 359-378. doi:10.1111/j.1475-6773.2008.00923.x

Noble, D. J., Greenhalgh, T., & Casalino, L. P. (2014). Improving population health one person at a time? Accountable care organisations: perceptions of population health-a qualitative interview study. *BMJ Open, 4*(4), e004665. doi:10.1136/bmjopen-2013-004665

Nutting, P. A., Crabtree, B. F., Miller, W. L., Stange, K. C., Stewart, E., & Jaen, C. (2011). Transforming physician practices to patient-centered medical homes: lessons from the national demonstration project. *Health Affairs, 30*(3), 439-445. doi:10.1377/hlthaff.2010.0159

Obrist, Brigitte, Twisselmann, Wiebke, Wicki, Simone C., & Aids-Hilfe, Schweiz. (1996). *Geschützte Freier : Aidsprävention im Sexgewerbe : eine Situationsanalyse*. Zürich: Aids-Hilfe Schweiz.

OECD. (2011). *OECD Reviews of Health Systems: Switzerland 2011*. Retrieved from Bern: http://www.oecd.org/els/health-systems/oecdreviewsofhealthsystems-switzerland.htm

OECD. (2013). *Health at a Glance 2013: OECD Indicators*. Retrieved from Genf: https://www.oecd.org/els/health-systems/Health-at-a-Glance-2013.pdf

Office of Disease Prevention and Health Promotion. (2014). Healthy People 2020 Retrieved from https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities

Pasricha, A., Deinstadt, R. T., Moher, D., Killoran, A., Rourke, S. B., & Kendall, C. E. (2013). Chronic Care Model Decision Support and Clinical Information Systems interventions for people living with HIV: a systematic review. *Journal of General Internal Medicine, 28*(1), 127-135. doi:10.1007/s11606-012-2145-y

Pate, J., Fischbacher, M., & Mackinnon, J. (2010). Health improvement: countervailing pillars of partnership and profession. *J Health Organ Manag, 24*(2), 200-217.

Patten, S. B. (2009). Accumulation of major depressive episodes over time in a prospective study indicates that retrospectively assessed lifetime prevalence estimates are too low. *BMC Psychiatry, 9*, 19. doi:10.1186/1471-244x-9-19

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research, 34*(5 Pt 2), 1189-1208.

Pennsylvania Academy of Family Physicians and Foundation. (2011-2014). Residency Program & Community Health Center Collaboratives. Retrieved from http://www.pafp.com/pafpcom.aspx?id=347

Peters, D.H. , Tran, N.T., & Adam, T. . (2013). *Implementation research in health: a practical guide*. Retrieved from World Health Organization: http://who.int/alliance-hpsr/alliancehpsr_irpguide.pdf

Piette, J. D., Holtz, B., Beard, A. J., Blaum, C., Greenstone, C. L., Krein, S. L., . . . Kerr, E. A. (2011). Improving chronic illness care for veterans within the framework of the Patient-Centered Medical Home: experiences from the Ann Arbor Patient-Aligned Care Team Laboratory. *Translational Behavioral Medicine, 1*(4), 615-623. doi:10.1007/s13142-011-0065-8

Plochg, T., Klazinga, N. S., & Starfield, B. (2009). Transforming medical professionalism to fit changing health needs. *BMC Medicine, 7*, 64. doi:10.1186/1741-7015-7-64

Plsek, Paul E, & Greenhalgh, Trisha. (2001). The challenge of complexity in health care. *BMJ: British Medical Journal, 323*(7313), 625.

Porter, ME., & Kaplan, SR. . (2015). *How Should We Pay for Health Care?* . Retrieved from Cambridge:

Potterat, J. J., Brewer, D. D., Muth, S. Q., Rothenberg, R. B., Woodhouse, D. E., Muth, J. B., . . . Brody, S. (2004). Mortality in a long-term open cohort of prostitute women. *American Journal of Epidemiology, 159*(8), 778-785.

Prevention Institute. (2011). Community centered Health Homes: Bridging the gap between health services and community prevention. Retrieved from http://www.preventioninstitute.org/CCHH

Pyett, P. M., & Warr, D. J. (1997). Vulnerability on the streets: female sex workers and HIV risk. *AIDS Care, 9*(5), 539-547. doi:10.1080/713613193

Reid, A., Baxley, E., Stanek, M., & Newton, W. (2011). Practice transformation in teaching settings: lessons from the I(3) PCMH collaborative. *Family Medicine, 43*(7), 487-494.

Ricketts, T. C., & Fraher, E. P. (2013). Reconfiguring health workforce policy so that education, training, and actual delivery of care are closely connected. *Health Affairs, 32*(11), 1874-1880. doi:10.1377/hlthaff.2013.0531

Rieselbach, R. E., Crouse, B. J., Neuhausen, K., Nasca, T. J., & Frohna, J. G. (2013). Academic medicine: a key partner in strengthening the primary care infrastructure via teaching health centers. *Academic Medicine, 88*(12), 1835-1843. doi:10.1097/acm.0000000000000035

Rittenhouse, D. R., Thom, D. H., & Schmittdiel, J. A. (2010). Developing a policy-relevant research agenda for the patient-centered medical home: a focus on outcomes. *Journal of General Internal Medicine, 25*(6), 593-600. doi:10.1007/s11606-010-1289-x

Rittenhouse , Diane R., Shortell , Stephen M., & Fisher , Elliott S. (2009). Primary Care and Accountable Care — Two Essential Elements of Delivery-System Reform. *New England Journal of Medicine, 361*(24), 2301-2303. doi:doi:10.1056/NEJMp0909327

Robert Wood Johnson Foundation. (2017). Robert Wood Johnson Foundation. . Retrieved from http://www.rwjf.org/en/about-rwjf.html

Romans, S. E., Potter, K., Martin, J., & Herbison, P. (2001). The mental and physical health of female sex workers: a comparative study. *Australian and New Zealand Journal of Psychiatry, 35*(1), 75-80.

Rosemann, Thomas. (2012). Versorgungsforschung – braucht es das in der Schweiz? . *Schweizerische Ärztezeitung, 93*(12).

Rosenbaum, Sara. (2011). The Patient Protection and Affordable Care Act: Implications for Public Health Policy and Practice. *Public Health Reports, 126*(1), 130–135.

Rosenthal , M. B. (2008). Beyond Pay for Performance — Emerging Models of Provider-Payment Reform. *New England Journal of Medicine, 359*(12), 1197-1200. doi:doi:10.1056/NEJMp0804658

Rothman, A. A., & Wagner, E. H. (2003). Chronic illness management: what is the role of primary care? *Annals of Internal Medecine, 138*(3), 256-261.

Roxburgh, A., Degenhardt, L., & Copeland, J. (2006). Posttraumatic stress disorder among female street-based sex workers in the greater Sydney area, Australia. *BMC Psychiatry, 6*, 24. doi:10.1186/1471-244x-6-24

Safety Net Medical Home Initiative. (n.d.). Change Concepts for Practice Transformation. Retrieved from http://www.qhmedicalhome.org/pcmh-qualis-health/change-concepts

SAMW. (2014). *Stärkung der Versorgungsforschung in der Schweiz*. Retrieved from file:///C:/Users/Ursula/Downloads/positionspapier_samw_staerkung_versorgungsforschung.pdf

Schoen, C., & Doty, M. M. (2004). Inequities in access to medical care in five countries: findings from the 2001 Commonwealth Fund International Health Policy Survey. *Health Policy, 67*(3), 309-322. doi:10.1016/j.healthpol.2003.09.006

Schoen, C., Osborn, R., How, S. K., Doty, M. M., & Peugh, J. (2009). In chronic condition: experiences of patients with complex health care needs, in eight countries, 2008. *Health Affairs, 28*(1), w1-16. doi:10.1377/hlthaff.28.1.w1

Schoen, C., Osborn, R., Squires, D., Doty, M., Pierson, R., & Applebaum, S. (2011). New 2011 survey of patients with complex care needs in eleven countries finds that care is often poorly coordinated. *Health Affairs, 30*(12), 2437-2448. doi:10.1377/hlthaff.2011.0923

Schoenwald, S. K., & Hoagwood, K. (2001). Effectiveness, transportability, and dissemination of interventions: what matters when? *Psychiatric Services, 52*(9), 1190-1197.

Scholle, S. H., Saunders, R. C., Tirodkar, M. A., Torda, P., & Pawlson, L. G. (2011). Patient-centered medical homes in the United States. *Journal of Ambulatory Care Management, 34*(1), 20-32. doi:10.1097/JAC.0b013e3181ff7080

Schouten, L. M., Hulscher, M. E., van Everdingen, J. J., Huijsman, R., & Grol, R. P. (2008). Evidence for the impact of quality improvement collaboratives: systematic review. *BMJ, 336*(7659), 1491-1494. doi:10.1136/bmj.39570.749884.BE

Schweizerisches Gesundheitsobservatorium. (2015). *Gesundheit in der Schweiz – Fokus chronische Erkrankungen. Nationaler Gesundheitsbericht 2015* Bern: Hogrefe Verlag.

Scorgie, F., Nakato, D., Harper, E., Richter, M., Maseko, S., Nare, P., . . . Chersich, M. (2013). 'We are despised in the hospitals': sex workers' experiences of accessing health care in four African countries. *Culture, health & sexuality, 15*(4), 450-465. doi:10.1080/13691058.2012.763187

Shaw, Eric K., Chase, Sabrina M., Howard, Jenna, Nutting, Paul, & Crabtree, Benjamin F. (2012). More Black Box to Explore: How Quality Improvement Collaboratives Shape Practice Change. *Journal of the American Board of Family Medicine, 25*(2), 149-157. doi:10.3122/jabfm.2012.02.110090

Sheikh, A., Sood, H. S., & Bates, D. W. (2015). Leveraging health information technology to achieve the "triple aim" of healthcare reform. *Journal of the American Medical Informatics Association, 22*(4), 849-856. doi:10.1093/jamia/ocv022

Shi, Leiyu. (2012). The Impact of Primary Care: A Focused Review. *Scientifica, 2012*, 22. doi:10.6064/2012/432892

Shortell, S. M. (2013). Bridging the divide between health and health care. *JAMA, 309*(11), 1121-1122. doi:10.1001/jama.2013.887

Singer, Susanne, & Brähler, Elmar. (2014). *Die »Sense of Coherence Scale«. Testhandbuch zur deutschen Version*. Göttingen: Vandenhoeck & Ruprecht GmbH & Co.

South Central Foundation. (n.d.). NUKA SYSTEM OF CARE. Retrieved from https://www.southcentralfoundation.com/files/Nuka%20Fundraiser%20Brochure-6pg.pdf

Spice, William. (2007). Management of sex workers and other high-risk groups. *Occupational Medicine, 57*(5), 322-328. doi:10.1093/occmed/kqm045

Starfield, B. (2001). New paradigms for quality in primary care. *British Journal of General Practice, 51*(465), 303-309.

Starfield, B., & Shi, L. (2002). Policy relevant determinants of health: an international perspective. *Health Policy, 60*(3), 201-218.

Starfield, B., Shi, L., & Macinko, J. (2005). Contribution of primary care to health systems and health. *Milbank Quarterly, 83*(3), 457-502. doi:10.1111/j.1468-0009.2005.00409.x

Steen, R., & Dallabetta, G. (2003). Sexually transmitted infection control with sex workers: regular screening and presumptive treatment augment efforts to reduce risk and vulnerability. *Reproductive health matters, 11*(22), 74-90.

Stellefson, M., Dipnarine, K., & Stopka, C. (2013). The chronic care model and diabetes management in US primary care settings: a systematic review. *Preventing Chronic Disease, 10*, E26. doi:10.5888/pcd10.120180

Stevenson Rowan, M., Hogg, W., & Huston, P. (2007). Integrating public health and primary care. *Healthc Policy, 3*(1), e160-181.

Stewart, M. (2001). Towards a global definition of patient centred care. *BMJ, 322*(7284), 444-445.

Stine, N. W., Chokshi, D. A., & Gourevitch, M. N. (2013). Improving population health in US cities. *JAMA, 309*(5), 449-450. doi:10.1001/jama.2012.154302

Stoto, M.A. (2014). Population Health Measurement: Applying Performance Measurement Concepts in Population Health Settings. *eGEMs, 2*(4), 1132. doi:10.13063/2327-9214.1132

Strathdee, S. A., West, B. S., Reed, E., Moazen, B., Azim, T., & Dolan, K. (2015). Substance Use and HIV Among Female Sex Workers and Female Prisoners: Risk Environments and Implications for Prevention, Treatment, and Policies. *Journal of Acquired Immune Deficiency Syndromes, 69 Suppl 2*, S110-117. doi:10.1097/qai.0000000000000624

Struijs , Jeroen N., & Baan , Caroline A. (2011). Integrating Care through Bundled Payments — Lessons from the Netherlands. *New England Journal of Medicine, 364*(11), 990-991. doi:doi:10.1056/NEJMp1011849

Sturmberg, J. P., O'Halloran, D. M., & Martin, C. M. (2012). Understanding health system reform - a complex adaptive systems perspective. *Journal of Evaluation in Clinical Practice, 18*(1), 202-208. doi:10.1111/j.1365-2753.2011.01792.x

Surratt, Hilary L., Kurtz, Steven P., Weaver, Jason C., & Inciardi, James A. (2005). The Connections of Mental Health Problems, Violent Life Experiences, and the Social Milieu of the “Stroll” with the HIV Risk Behaviors of Female Street Sex Workers. *Journal of Psychology & Human Sexuality, 17*(1-2), 23-44. doi:10.1300/J056v17n01_03

Swiss Federal Statistical Office. Retrieved from https://www.bfs.admin.ch/bfs/en/home/news/press-releases.assetdetail.1400219.html

Taggart, J., Williams, A., Dennis, S., Newall, A., Shortus, T., Zwar, N., . . . Harris, M. F. (2012). A systematic review of interventions in primary care to improve health literacy for chronic disease behavioral risk factors. *BMC Family Practice, 13*, 49. doi:10.1186/1471-2296-13-49

Tai-Seale, M., McGuire, T. G., & Zhang, W. (2007). Time allocation in primary care office visits. *Health Services Research, 42*(5), 1871-1894. doi:10.1111/j.1475-6773.2006.00689.x

Thomas, P., Meads, G., Moustafa, A., Nazareth, I., Stange, K. C., & Donnelly Hess, G. (2008). Combined horizontal and vertical integration of care: a goal of practice-based commissioning. *Quality in Primary Care, 16*(6), 425-432.

Thomas, S. P. (2013). From the editor: How can psychiatric nurses respond to the global pandemic of sex trafficking? *Issues in Mental Health Nursing, 34*(6), 385. doi:10.3109/01612840.2013.792169

Tipirneni, R., Vickery, K. D., & Ehlinger, E. P. (2015). Accountable Communities for Health: Moving From Providing Accountable Care to Creating Health. *Annals of Family Medicine, 13*(4), 367-369. doi:10.1370/afm.1813

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*(6), 349-357. doi:10.1093/intqhc/mzm042

Trageser, J., Vettori, A., Fliedner, J., & Iten, R. . (2014). *Mehr Effizienz im Gesundheitswesen. Ausgewählte Lösungsansätze.* . Retrieved from Zürich: http://www.infras.ch/media/filer_public/08/26/08261d9e-4d0e-4521-bbc7-99e77d218a42/losungsansatze_effizienz_schlussbericht_140519.pdf

True, G., Butler, A. E., Lamparska, B. G., Lempa, M. L., Shea, J. A., Asch, D. A., & Werner, R. M. (2013). Open access in the patient-centered medical home: lessons from the Veterans Health Administration. *Journal of General Internal Medicine, 28*(4), 539-545. doi:10.1007/s11606-012-2279-y

Tsai, A. C., Morton, S. C., Mangione, C. M., & Keeler, E. B. (2005). A meta-analysis of interventions to improve care for chronic illnesses. *American Journal of Managed Care, 11*(8), 478-488.

U.S. Department of Veterans Affairs. (2017). National Center for Health Promotion and Disease Prevention. Retrieved from http://www.prevention.va.gov/

Uchtenhagen, A. (2010). Heroin-assisted treatment in Switzerland: a case study in policy change. *Addiction, 105*(1), 29-37. doi:10.1111/j.1360-0443.2009.02741.x

University of Minnesota, Medical School Department of Medicine. (2013). Minnesota Primary Care Transformation Collaborative. Retrieved from http://www.dom.umn.edu/education/minnesota-primary-care-transformation-collaborative/index.ht

University of South Carolina School of Medicine. (2013, September 11, 2013). I3 Population Health Collaborative. Retrieved from http://www.pcpcc.org/trainingprogram/i3-population-health-collaborative

Valentijn, P.P., Boesveld, I. C., van der Klauw, D. M., Ruwaard, D., Struijs, J. N., Molema, J. J., . . . Vrijhoef, H. J. (2015). Towards a taxonomy for integrated care: a mixed-methods study. *International Journal of Integrated Care, 15*, e003.

Valentijn, P.P., Schepman, S.M., Opheij, W., & Bruijnzeels, M.A. (2013). Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. *International Journal of Integrated Care, 13*. doi:http://dx.doi.org/10.5334/ijic.886

Veterans Health Administration. (2014, February 18, 2014). Patient Aligned Care Team (PACT). Retrieved from http://www.va.gov/health/services/primarycare/pact/index.asp

Vretveit, J., Bate, P., Cleary, P., Cretin, S., Gustafson, D., McInnes, K., . . . Wilson, T. (2002). Quality collaboratives: lessons from research. *Quality & Safety in Health Care, 11*(4), 345-351.

Vuylsteke, B., Ghys, P. D., Mah-bi, G., Konan, Y., Traore, M., Wiktor, S. Z., & Laga, M. (2001). Where do sex workers go for health care? A community based study in Abidjan, Cote d'Ivoire. *Sexually Transmitted Infections, 77*(5), 351-352.

Wagner, E. H. (2001). Meeting the needs of chronically ill people : Socioeconomic factors, disabilities, and comorbid conditions are obstacles. *BMJ : British Medical Journal, 323*(7319), 945-946.

Wagner, E. H. (2009, 2006-2015). Working With Academic Medical Centers. Retrieved from http://www.improvingchroniccare.org/index.php?p=Academic_Medical_Center_Collaboratives&s=383

Wagner, E. H. (2010). Academia, chronic care, and the future of primary care. *Journal of General Internal Medicine, 25 Suppl 4*, S636-638. doi:10.1007/s11606-010-1442-6

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: translating evidence into action. *Health Affairs, 20*(6), 64-78.

Wagner, E. H., Austin, B. T., & Von Korff, M. (1996). Organizing care for patients with chronic illness. *Milbank Quarterly, 74*(4), 511-544.

Wagner, E. H., Coleman, K., Reid, R. J., Phillips, K., Abrams, M. K., & Sugarman, J. R. (2012). The changes involved in patient-centered medical home transformation. *Primary Care: Clinics in Office Practice, 39*(2), 241-259. doi:10.1016/j.pop.2012.03.002

Ward, B.W., Schiller, J. S., & Goodman, R. A. (2014). Multiple chronic conditions among US adults: a 2012 update. *Preventing Chronic Disease, 11*, 62. doi:10.5888/pcd11.130389

Ward, H., Mercer, C. H., Wellings, K., Fenton, K., Erens, B., Copas, A., & Johnson, A. M. (2005). Who pays for sex? An analysis of the increasing prevalence of female commercial sex contacts among men in Britain. *Sexually Transmitted Infections, 81*(6), 467-471. doi:10.1136/sti.2005.014985

Wartman, S. A., Zhou, Y., & Knettel, A. J. (2015). Health Reform and Academic Health Centers: Commentary on an Evolving Paradigm. *Academic Medicine, 90*(12), 1587-1590. doi:10.1097/acm.0000000000000948

Weiss, G. G. (2013). PCMH: 6 ways to get started. Technology, care coordination, redefining staff roles keys to implementation success. *Medical Economics, 90*(5), 14-17, 20.

Welton, W. E., Kantner, T. A., & Katz, S. M. (1997). Developing tomorrow's integrated community health systems: a leadership challenge for public health and primary care. *Milbank Quarterly, 75*(2), 261-288.

Wenger, Etienne. (2000). Communities of Practice and Social Learning Systems. *Organization, Volume 7*(2), 225-246.

Whitehead, M. (1992). The concepts and principles of equity and health. *International Journal of Health Services, 22*(3), 429-445.

Whitlock, E. P., Orleans, C. T., Pender, N., & Allan, J. (2002). Evaluating primary care behavioral counseling interventions: an evidence-based approach. *American Journal of Preventive Medicine, 22*(4), 267-284.

Wieser, S., Tomonaga, Y., Riguzzi, M., Fischer, B., Telser, H., Pletscher, M., . . . Schwenkglenks, M. (2014). *Die Kosten der nichtübertragbaren Krankheiten in der Schweiz*. Retrieved from Bern: file:///C:/Users/Ursula/Downloads/Schlussbericht+COI+NCDs+in+CH+2014+07+21.pdf

Wikipedia. (2015, march, 5th 2015). Integrated care. Retrieved from https://en.wikipedia.org/wiki/Integrated_care#cite_note-Kodner-1

Williams, J. W., Jackson, G. L., Powers, B. J., Chatterjee, R., Bettger, J. P., Kemper, A. R., . . . Gray, R. (2012). Closing the quality gap: revisiting the state of the science (vol. 2: the patient-centered medical home). *Evidence report/technology assessment*(208.2), 1-210.

Williams, R. B., Barefoot, J. C., Blumenthal, J. A., Helms, M. J., Luecken, L., Pieper, C. F., . . . Suarez, E. C. (1997). Psychosocial correlates of job strain in a sample of working women. *Archives of General Psychiatry, 54*(6), 543-548.

Wilson, T., Berwick, D. M., & Cleary, P. D. (2003). What do collaborative improvement projects do? Experience from seven countries. *Joint Commission journal on quality and safety, 29*(2), 85-93.

Wittchen, H. U., Lachner, G., Wunderlich, U., & Pfister, H. (1998). Test-retest reliability of the computerized DSM-IV version of the Munich-Composite International Diagnostic Interview (M-CIDI). *Social Psychiatry and Psychiatric Epidemiology, 33*(11), 568-578.

Wittchen HU, Pfister H. . (1997). M-CIDI. PC-Version des Diagnostischen Expertensystem für Psychische Störungen DIA-X. Frankfurt.

Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948., (1946 7 April 1948).

World Health Organization. (2013). *Health 2020. A European policy framework and strategy for the 21st century.* Copenhagen: WHO Regional Office for Europe.

Yarnall, K. S., Pollak, K. I., Ostbye, T., Krause, K. M., & Michener, J. L. (2003). Primary care: is there enough time for prevention? *American Journal of Public Health, 93*(4), 635-641.

Zumbeck, S. (2001). *Die Prävalenz traumatischer Erfahrungen, posttraumatischer Belastungsstörungen und Dis-soziation bei Prostituierten. Eine explorative Studie* Hamburg: Verlag Dr. Kovac.

Zumbeck, S., Teegen, F., Dahme, B., & Farley, M. . (2003). Posttraumatische Belastungsstörung bei Prostituierten-Ergebnisse einer Hamburger Studie im Rahmen eines internationalen Projekts. *Zeitschrift für Klinische Psychologie, Psychiatrie und Psychotherapie, 51*(2), 121-136.